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THE SPIRO MOUND

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THE SPIRO MOUND

by

Henry W. Hamilton

with a

Preface

by

James B. Griffin

and including

An Interpretation of the Place of Spiro in Southeastern Archaeology

by

James B. Griffin

and

Textile Fabrics from the Spiro Mound

by

Charles C. Willoughby

The Missouri Archaeologist

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Preface
by
James B. Griffin

The Spiro story has long been delayed. This publication which reviews an essential part of the history of the early excavations and describes a large part of the material and features found there is a valuable part of the still to be written cultural reconstruction of the site.

This volume is the direct result of the intense interest in American archaeology of Henry W. Hamilton and his wife Jean Tyree Hamilton of Marshall, Missouri. Soon after they became aware of the extraordinary aboriginal artifacts that were being excavated at Spiro, they began to wonder if anyone was making a record of the excavation or the unusual specimens which were coming out in such numbers that they literally "broke the market." Inquiries among professional archaeologists indicated that no one was assuming the responsibility of gathering the data which was available. Mr. and Mrs. Hamilton, assisted by Mr. T. M. Hamilton, of Marshall, formerly of Chicago, who photographed many of the specimens, set out to obtain as accurate an account as possible from the men who made the commercial excavations, from eye-witnesses of the early digging, from the dealers and collectors who purchased at the site and from the many museums and collectors who had obtained specimens.

A considerable amount of time and a not inconsiderable sum was spent by the Hamiltons in gathering the photographs, measurements and observations. They received excellent cooperation from almost all of the individuals to whom they found it necessary to go for information. A list of these people is included in the acknowledgements in the Hamilton manuscript.

In 1939, Mr. and Mrs. Hamilton asked permission to come to Ann Arbor and consult Dr. Carl E. Guthe, then Director of the Museum of Anthropology at the University of Michigan, about the publication of the manuscript they had prepared. Dr. Guthe asked me to meet with him and the Hamiltons and it was agreed that I should act as consultant to aid in the preparation of a second draft and that I would prepare a section indicating the importance of the Spiro data collected by the Hamiltons and discuss its significance in southern United States prehistory. Before either of these tasks was completed, conversations and correspondence between Griffin and Dr. Forrest Clements resulted in an agreement made by the Hamiltons with Clements to publish their manuscript and illustrations as a part of the University of Oklahoma publication on the site. Before this arrangement could be consummated Dr. Clements left the University of Oklahoma and entered war work in Washington. The Hamiltons

withdrew their manuscript from the University of Oklahoma and again counted on my aid in preparing a comparative chapter and in getting their paper published.

Before I was able to get fairly started I learned that Dr. Kenneth Orr who had excavated at Spiro had completed a preliminary report on the University of Oklahoma excavations and was planning to return to Norman as a member of the University staff. An agreement was reached between Mr. and Mrs. Hamilton and Dr. Orr that he would prepare the interpretive section for their paper and through the courtesy of Savoie Lottinville that the University of Oklahoma would publish the report. After a year at Oklahoma, Dr. Orr joined the staff of the University of Chicago where he found the pressure of University duties so heavy that progress on his section was slow. In the meantime, Dr. Orr decided to prepare a definitive statement on the details of the University of Oklahoma excavations, a task of considerably greater magnitude which will take some time to complete.

The University of Oklahoma Press planned to issue this report but for various reasons was unable to do so. Finally through the cooperation of Professor Carl H. Chapman and Professor Jesse E. Wrench of the Missouri Archaeological Society this valuable record of American prehistory will be published.

Over and above the service which the Hamiltons have performed in preserving for posterity as much of the record and specimens as they could from the Spiro commercial excavations is the information they incidentally obtained of the way items are dispersed through dealers and are shifted from owner to owner. It is reasonable to assume that as a result of this diligent detective work that a record has been gathered of the majority of the more important items now in institutions or in private hands. This publication may be of some assistance in helping to keep at a minimum the number of specimens which will be attributed to Spiro in the future. Some specimens included in this volume were illustrated in the recent publication by the Museum of the American Indian.[1] Of these, certain ones have been in that institution for some time and photographs were obtained by the Hamiltons at an early date for publication. Other specimens formerly in other collections have since been acquired by the Museum of the American Indian.

One of the questions which bothered Mr. and Mrs. Hamilton when they began their second revision was whether they should do

[1](Burnett, 1945 and Clements, 1945)

much comparative work and attempt to draw any conclusions on the cultural allocation of the Spiro site. They were urged to do so for therein lies much of the interest and value of archaeological work. By so doing they were also able to obtain a better idea of the problems and difficulties of professional work.

American Archaeology has benefited from the host of non-professional students of Indian history who have made it their business to become familiar with their own local area or some special region. Such individuals make most important contributions by providing the professional with a great deal of valuable information on the location of sites and the nature of the Indian remains at those sites. It has been said that an outstanding professional archaeologist can be made by publishing the results obtained by the leading non-professional students of a particular region aided by additional field work. An example which comes to mind is the work of the Wetherill brothers in the Southwest who made outstanding advances in the interpretation of the Anasazi area.[2]

In the St. Louis area there are a number of individuals whose activity in the field and in the study of specimens has been of benefit to American archaeology. Of this group, Dr. Paul F. Titterington is perhaps the most outstanding since he has not only preserved a great deal of the specimens from his excavations and cataloged them, but has written a number of papers on these finds which are valuable parts of the information on the lower Illinois Valley and adjacent areas. Another outstanding individual, also a medical man, Dr. Clarence H. Webb of Shreveport, Louisiana, by his careful field work, detailed and analytical study of features and artifacts has been accorded considerable recognition by the professional students. These examples could be multiplied many times.

The work of preserving and reporting on his finds or of the work of others is one way in which the non-professional student of archaeology may be of service to the field of archaeology as a whole. By and large this should not be regarded as an unusual procedure but should become a recognized obligation on the part of serious collectors with any regard for the prehistory of this country. If such collectors, for one reason or another do not care to produce such a written report, aid should be requested from the professional student. There is also an obligation on the part of the professional archaeologist to encourage and aid the preparation of reports on materials and data which are obtained by the amateur. There is an obligation on the part of local, state and national bodies concerned with the preserva-

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[2](Brew, 1946, pp. 20-21.)

tion of American prehistory to see that suitable provision is made for the care of scientifically and culturally important materials and data which is gathered either under their auspices or by individual citizens. It is a responsibility of the interested citizen to see that there is available in his area and in the United States as a whole, public, or private institutions in which the irreplaceable records of the Indian occupation and utilization of this country can be preserved.

The Spiro Mound

by

Henry W. Hamilton

Acknowledgements

Only through the co-operation of many people has this work been possible and we wish to express our appreciation for this assistance.

To James B. Griffin, Director, Museum of Anthropology, University of Michigan, go particular thanks. His sustained interest and professional advice through the years have been important factors in the completion of the manuscript. Although the judgements and interpretations of the report are the sole responsibility of the author, its organization and several other features are a direct reflection of Dr. Griffin's efforts. Perhaps even more important than technical recommendations has been the stimulating effect of many vigorous discussions of the problems arising from the study.

Carl E. Guthe, Chairman, Department of Anthropology, University of Michigan, gave helpful criticism and suggestions.

All of the photographic work, except that otherwise credited, was done by T. M. Hamilton. In all he furnished more than three hundred and eighty photographs toward the making of this report.

A tremendous amount of correspondence was necessary in order to locate material and related data. This work could not have been carried on without the assistance of Ethel Clough Zeysing. A great portion of the work of taking the drawings off of the engraved shells and preparing the drawings for the making of plates was also done by her.

Much of the research in connection with the references was done by Jean Tyree Hamilton. She also assisted in the taking of the engravings from the shells and in the preparation of the manuscript.

The Spiro materials in the University of Arkansas Museum were made available to us by S. C. Dellinger, Director, who also contributed an eye-witness account of the opening of the central portion of the Mound.

Appreciation is expressed to Col. T. H. Barton for financial assistance to the University of Arkansas Museum in acquiring their Spiro materials and also in enabling them to have made the drawings and photographs which they furnished us.

We are indebted to Eleanor F. Chapman for drawing Plates #49, #66, #69, #76, #77.

Thorne Deuel, Director, Illinois State Museum, Springfield, worked at the site in 1933 in connection with the Archaeological Survey of the Mississippi Valley for the University of Chicago. He kindly furnished us with his notes on considerable of the material that was found while he was at the mound.

Lynn E. Howard, Asst. Director of the University of Arkansas Museum, furnished illustrations of several pieces as well as data concerning them.

Robert E. Bell, Chairman, Department of Anthropology, University of Oklahoma, read the manuscript and offered suggestions. He furnished data for the drawings in Plates #49, #66, and #76. As a student in 1933 and 1934, he stayed at the mound during the excavation and took photographs of the material as it came from the site. Through him it was possible to clear up many questions concerning the site, its materials, and its excavation.

We wish to thank J. Willis Stovall, Director of the University of Oklahoma Museum for his long continued efforts toward getting the manuscript published.

Appreciation is due Jesse E. Wrench, President of the Missouri Archaeological Society, who has helped edit and proof the manuscript and who aided in making possible its publication.

We are indebted to the following for the opportunity to examine and photograph material in their collections. (In collections that have catalogue numbers, such numbers follow the Plate numbers)

J. W. Balloun, Dardanelle, Arkansas was one of the three dealers who regularly visited the mound and bought material from the excavators during the period when the greatest amount was being unearthed. His material is shown in Plates #46 and #65 A, and C.

William C. Barnard, Seneca, Missouri, was a practicing physician and collector. K. A. McKenzie, one of the diggers, supplied the information that he, with others, had sold Dr. Barnard 30 to 40 pieces. McKenzie described some of the material at the time this information was given. Barnard's material is shown in Plates #17 B and C, #18 B, #21 A, #44 B, #45, #50, #51, #53, #61 B, #70 and #71.

Raymond Blake, Independence, Missouri, is a collector whose material is shown in Plate #131 B.

J. G. Braecklein, Kansas City, Missouri, architect, collector and dealer, was contacted during the height of the digging by Balloun from whom he purchased. Mr. Braecklein also visited the site and purchased material as it came from the mound. His material is shown in Plates #69 C, #101 A, #108 B, #117 A and #134 B.

Ralph J. Duerr, Clinton, Missouri, is a collector whose material is shown in Plate #126 C.

Glen I. Groves, Chicago, Illinois, a dealer, purchased from Glenn Cooper and K. A. McKenzie on their trip to Chicago. He visited the site during excavation and purchased from John O. Hobbs. His material is shown in Plates #11, #12, #20, #34, #56 and #83.

Albert Hansen, Kansas City, Missouri, student and collector, purchased from J. G. Braecklein. He furnished material shown in Plates #62, #91 B, #124 B, #126 A and #130 C.

Richard K. Meyer, Peoria, Illinois, student and collector, had purchased from H. T. Daniel and G. E. Pilquist. He also visited the site during the excavation. Material in his possession is shown in Plates #6, #8, #13, #16, #17 D, #24, #25, #26, #29, #30 A, #52, #58, #59, #60 A, #67, #80 B, #88 D, #114 A, #123 A, #126 B, #134 A and #137 B.

G. E. Pilquist, Dardanelle, Arkansas, was one of the three dealers who visited the mound and with regularity bought material from the excavators. His material is shown in Plates #7 and #22 A.

H. I. Player, Kansas City, Missouri, jeweler and collector, purchased from Mrs. John O. Hobbs when she visited Kansas City. He also purchased from J. G. Braecklein and J. W. Balloun. Material which he had is shown in Plates #32 A, #69 D, #120 B, #122 B and C, #125 B, C and D, and #128 A.

E. Lee Renno, St. Charles, Missouri, editor, postmaster and collector, purchased from H. T. Daniel. His material is shown in Plates #9, #10, #35, #36, #37, #38, #69 B, #82 B, C and D, #89 A, left half and B, #91 C, #100 and #101 B.

The material in the collection of B. W. Stephens, Quincy, Illinois, collector, is shown in Plate #47.

Lyle A. Stephenson, Kansas City, Missouri, insurance broker and collector, purchased from J. G. Braecklein. This material is shown in Plates #117 B, #130 B, #134 B and #138 D.

H. M. Trowbridge, Bethel, Kansas, collector, purchased much of his material from J. G. Braecklein, J. W. Balloun, G. E. Pilquist, H. T. Daniel and Mr. McWade of Kansas City, who visited the site during the excavation. He later purchased from H. I. Player and Albert Hansen. These materials are shown in Plates #17 A--2699; #22 B--2714; #31 A--2701; #31 B; #41--2741; #42--2688; #44 A--2715, 2730; #85--2740, 2739, 2741; #91 D--2649; #92--2635, 2640; #93--2635; #94--2620, 2833; #95 A--2733; #103 B--2627; #103 C--2652; #105--2640; #106--2651; #108 A--2618; #114 B--2626; #115--2621, 2619; #116--2623, 2633; #119--2632; #119 A--2630; #122 A--2636; #124 A--2634; #125 A--2625; #128 B--2637; #129--2622, 2732; #132 B--2639; #132 C--2624; #134 C--2654; #134 D--2653; #136--2646, 2631; #138 A--2644; #138 C--2638; #138 E--2761; #139 A--2642; #139 B--2643; #142; #143--2723; #144--2742; #145--2747, 2746; #146--2743; #147--2745, 2748; #149--2725, 2726, 2727, 2749. The material in this collection is on temporary loan at the Kansas City Museum, Kansas City, Missouri.

Since the preparation of this report the following material illustrated has been added to the collection of H. M. Trowbridge, Bethel, Kansas: Plates #32 A, upper right--2780, upper left--2778, lower left--2779; #62--2781; #108 B--2817; #128 A--2769; #130 C--2832; #134 B--2890; #122 C--2774; #91 B--2828; #85, third from left--2874. This material is also on temporary loan to the Kansas City Museum, Kansas City, Missouri

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We wish to thank the following for the illustrations which they furnished of material from the site:

The Museum of the American Indian, New York, purchased some of their material from J. W. Balloun, Glen I. Groves and G. E. Pilquist. Later much of that belonging to William C. Barnard, and here so credited, was acquired. Photographs purchased from the Museum are shown in Plates #15--18/9112; #23--18/9113; #28 A--18/9306; #28 B--18/9307; #39--18/9334; #40--18/9335; #54--18/9077; #55--18/9077; #60 B--18/9312G; #63--18/9351; #64--18/9331; #68--18/9311; #86--18/9084; #87--18/7897; #90 A--18/9085; #97--18/9310; #99--18/9121, 18/9125, 18/9309; #103 A--18/9120; #104--18/9122, 18/9083; #113--18/9082, 18/9126; #119 B--18/9127; #119 C--18/9118; #132 A--18/9308; and #133 B--18/9124.

The University of Arkansas Museum furnished the photographs shown in Plates #27, #89 A, right half; #90 B--B.Sp.106; #102 B--B.Sp.113; #96--B.Sp.111; #98--B.Sp.110; #107--B.Sp.109; #109--B.Sp.107; #110--B.Sp.103; #111--B.Sp.105; #112--B.Sp.100, B.Sp.115;

#121--B.Sp.102, B.Sp.114; #131 A--B.Sp.108; #133 A--B.Sp.104; and #135. The effigy pipe shown in Plates 9 and 10 is now owned by the University of Arkansas Museum.

Harry T. Bell, Marion Ohio, collector, furnished material for Plates #88 C and #65 B.

Allen Brown, Chicago, Illinois, commercial artist and collector, photographed material belonging to Glenn I. Groves.

The Department of Anthropology, University of Chicago supplied photographs shown in Plates #48 and #80 A.

H. T. Daniel, Dardanelle, Arkansas, one of the three dealers who regularly visited the mound and bought material from the excavators furnished the photograph in Plate #1.

The University of Oklahoma Museum supplied the material shown in Plates #18 A, #95 B, and #108 C.

J. S. Royer, Dayton Ohio, artist and collector, purchased material from G. E. Pilquist. He furnished the drawings and photographs shown in Plates #21 B, and C; #23 A; #32 B; #69 A; #72; #82 A; #88 A and B; #91 A; #102 A; #116 C; #120 A; #127; #130 A; #137 A and #138 B.

Henry C. Shetrone, Director, Ohio State Museum, furnished the material shown in Plates #73, #74, and #75, which was secured through Robert E. Bell.

Claude U. Stone, Peoria, Illinois, publisher and collector, supplied photographs appearing in Plates #14, #19, #23 B, #30 B, #57, #61 A and #84. The effigy pipe shown in Plates 11 and 12 is now in this collection.

Dr. P. F. Titterington, St. Louis, Missouri, X-ray specialist and amateur archaeologist, photographed material in the E. Lee Renno collection.

A. T. Wehrle, Newark, Ohio, manufacturer and collector, furnished the material shown in Plates #43, #77, #78 and #79, which was secured through Robert E. Bell.

To the many others, for the benefit of their information, advice, or encouragement, we express thanks.

Introduction

The purpose of this work has been to assemble all such information concerning the Spiro Mound and its contents as was available from the first or commercial excavation, 1933 to 1935. No direct observations or personal knowledge of the details of the excavation were possible (The writer first saw the Spiro Mound on the 11th day of June, 1936). The greater part of the information has been assembled from those engaged in the digging as well as others who were present while the work was in progress. From the men who had contact with the digging, as well as the number who in one way or another had contact with the distribution of the cultural material found, we hurried to salvage as much information as possible before the passage of time had covered the few remaining traces. It is emphasized that a critical attitude toward the information has been held throughout the work, and possibly some material attributed to the mound, but not included in the report may have been entirely genuine.

After the lease of the commercial diggers expired, the site came into the possession of the University of Oklahoma, the University of Tulsa and the Oklahoma State Historical Society who proceeded with a proper and scientific excavation of the mound. It is to be hoped that the later excavations will be able to establish many facts concerning the site. Unfortunately a number of points of necessity only partially covered in this report may never be definitely established due to the extent of disturbance and actual earth removal in the commercial excavation. This is particularly true of information concerning the inner structure of the large mound.

One of the major problems confronted in the making of this report was that of tracing the location of the material that had come from the site. The first step undertaken was to interview as many as possible of those who had engaged in the digging or who had been present during that period. A great portion of the material had passed through the hands of certain dealers before coming into the collections where it was finally located, and it was found that both the dealers and the diggers had a definite recollection of many specific pieces, together with a general knowledge of the number and type of pieces that had been sold to different individuals. The location and identification of artifacts from the mound, then, was done by the more direct method of identification by those first handling them at the site and tracing them through dealers and collectors until the material was located, rather than trying to establish the identity of the material by tracing it from collections back to the site. In many instances descriptions of the more outstanding pieces had been obtained long before they were located. In fact, through these descriptions it was often possible to locate the particular individual who

could tell to whom the material had finally been sold. In working under such circumstances, it was to be expected that much of the material would never be located. This was particularly true of the more usual forms, such as projectile points and axes, for these forms lost their identity more quickly in large collections than effigies and pieces that were unusual because of shape or size.

While there is always a possibility that certain articles attributed to Spiro might be fraudulent, or not truly from this site, even though they might be genuine in other respects, the circumstances prevailing at the time of the digging operated to lessen the danger of substitution or outright fabrication of such material. In the first place, a relatively small number of persons was involved in the distribution of the material. The artifacts appeared so fast that the problem was more one of distribution and sale, rather than acquisition. The quantity of material discovered was so great as temporarily to break the market for such objects. Genuine objects, of usual types, which might readily have been substituted, did not meet with a ready sale because of the total quantity of genuine unusual material from the mound on the market at the time. In general, the state of weathering, decomposition, corrosion, patination, or calcination would seem to give a fair assurance of the genuineness of the article. In some instances, objects have been omitted because of the lack of such characteristics. It was noted that more of such articles put in a scattered appearance toward the latter part of the work, after time had given a better opportunity for their construction, and a better price for the effort than was true in the beginning, when the market was still staggering from the impact of the opening of the Spiro Mound.

The digging of the Spiro Mound was purely a depression-time business venture. Neither the diggers nor anyone else have any account of the amount received by the excavators for the loot. In gathering the data for this report the amounts received for much of the material were mentioned by those dealing with it, and these amounts were noted. If these prices may be taken as criteria by which to judge the amount received for the whole, then it is doubtful if the diggers received even the prevailing depression-time wage for their efforts. As an example of prices received, the writer was offered the last twelve or fifteen of the large engraved shells that remained in the hands of a certain dealer, for two dollars each. They were not bought, due to lack of foresight, and later it was necessary to expend much more money, not to mention time and effort, to travel around the country and look up these same shells in order to photograph and draw them.

Almost the entire section concerning the mound structure, inner plan, and the placement of objects, as indicated in the diagram-

matic sketches in the forepart of this report is based upon the recollections of John O. Hobbs of Spiro, Oklahoma, one of the six men who held the lease on the site and engaged in the commercial excavation. Mr. Hobbs had lived in this region since his boyhood when it was Indian Territory. His wife was a member of the Choctaw tribe and their home was within four miles of the site. For many years Hobbs had farmed a tract of land within sight of the mound. K. A. McKenzie and William McKenzie of Le Flore County, Oklahoma, and Jim Vandagriff of Paeola, Arkansas, who were also lessees and engaged in the commercial excavation, substantiated statements made by Mr. Hobbs. The other men connected with this lease and excavation were Glenn Cooper and R. W. Wall. The latter two men could not be located. This six man partnership called itself the "Pocola Mining Company."

Circumstances and time have served to authenticate many statements made by certain of the diggers and dealers. For instance, on our first trip in connection with the site, H. T. Daniel related that two of the "Half and Half" effigy pipes had been found, but he did not know to whom they had been sold. About two years later the one illustrated, Plate #8, was found and photographed but the other pipe of this type has not yet been located. The University of Oklahoma, however, in their later excavation found a second Eagle and Woman effigy pipe. Since there were two Eagle and Woman pipes, it would seem reasonable to believe that there could have been more than one "Half and Half," even though the story of the existence of such a pipe form sounded somewhat incredible when first heard. Another example of what sounded at the time like a far-fetched story, and later was at least indirectly verified, is illustrated by the statement of John O. Hobbs that an engraved shell had been found which showed a man paddling a boat. In fact, Mr. Hobbs went to a great deal of time and trouble to try to relocate this shell, but without success. It is understood that an engraved shell found later by the University of Oklahoma also showed a man paddling a boat or canoe.

We have been motivated by the idea that information about the Spiro Mound, even though given by untrained observers, is better than no information, so it is here presented for whatever it may be worth.

General Description of the Site

The Spiro Mound is located on the south side of the Arkansas River, in SE1/4 NE1/4 NE1/4 Sec. 29, Township 10N, Range 26 EIM., in Le Flore County, Oklahoma. It is 5 8/10 miles northeast of Spiro, the town from which the site receives its name. It stands on a river terrace in a large bend of the river and is surrounded by culti-

vated fields in which cotton is one of the principal crops. At the time of the excavation the course of the stream was about 3/10 miles north of the mound. Approximately 10 miles northeast, across the state line, is Fort Smith, Arkansas.

This region is rich in stories of late historic Indian times. One and a half miles west and slightly north of the Spiro Mound stands the bluff upon which Old Fort Coffee was located. This bluff of solid rock rises perpendicularly above the waters of the Arkansas River. To this location the people of the Choctaw Tribe were brought by boat when, in 1832, they were removed by the Federal Government from their former location in the State of Mississippi. Near the town of Spiro and in the direction of the Mound is Skullyville, the place where the Choctaw Tribe held its councils, conducted its own courts, and meted out its own punishments whether they were executions or lesser sentences, until the time that Indian Territory became a state. The old Agency building from which the Indians received their annuities still stands, and also a building which was one of the first schools of the region. At the roadside, just north of the Agency building, a never-failing spring pours forth its water to run down the roadside ditch, and travelers frequently stop there today. In spite of the fact that there has been an Indian population in this region continuously since the coming of the earliest whites, no information, legendary or otherwise, is available concerning the people who built the Spiro Mound. The oldest Indians simply say that the structure was there when they first knew the country and that they know nothing concerning who may have built it.

The Spiro Mound, later called "Craig Mound" of the Spiro Group by the University of Oklahoma and popularly termed "Great Temple Mound," was, in fact, a large conical mound approximately 112 feet in diameter and 33 feet high, with a connected elevation of about half that height extending approximately 188 feet to the south. At one time, according to local people, this extension was in the form of three additional conical mounds, (Pl. 3 A & B) each smaller and with less elevation than the last, so that the apex of each of the four, if connected, would have formed an approximately straight line. Some maintain, however, that the mound to the south was higher than the two mounds between it and the large mound. The "mound," if such this structure may be termed, is a part of a mound group, for to the west approximately one fourth mile on a slight elevation above the Spiro Mound is a second large conical mound (later referred to as the "Brown Mound" of the Spiro Group by the University of Oklahoma), and within this quarter-mile radius are several smaller mounds. Some of the latter were said to have been as much as 15 feet in diameter and 4 feet high, but continued cultivation had materially reduced them. From time to time the smaller mounds had yielded

material similar in type to that which later came from the principal site, and continued cultivation across the smaller mounds was still bringing a small amount of such material to light in the early 1940's.

Some time previous to the excavation of the principal mound, the second large mound had been excavated and the entire center of the structure removed. With the exception of a section on the north, the side walls had been left standing. This digging had been done by the Vandagriff brothers, with the use of teams and scrapers. It was reported that practically nothing in the form of artifacts was found in this location. The excavation at this latter site, when viewed from the top of the side walls, gave the impression of a large well, great enough in diameter for teams to come in, turn around, and take a load of dirt back out through the open side. The bottom of this excavation had evidently extended well below the surrounding ground level. Stories persisted to the effect that this excavation had unearthed the remains of some sort of wooden structure, but whether any such possible remains might have been indicative of a structure on the top of the mound or lower and within the earth was entirely inconclusive.

For more than 20 years, intermittent digging by various individuals of the community had been carried on at the Spiro Mound. The digging had been confined mainly to the smaller connecting mounds and had yielded some outstanding pieces. Apparently very little digging had been done in the sides or top of the large mound, probably due to the fact that it would be necessary to remove large quantities of earth from the outside before any artifacts could be found, as was proved by later excavation. A few years previously, some boys had dug a hole about 4 feet deep in the top of the large mound, and this remained at the time it was finally entered.

THE EXCAVATION

In the late summer of 1933, six men who became the Pocola Mining Company each paid the man who controlled the land upon which the mound stood fifty dollars for a two year lease to dig. The lease expired on November 27, 1935. This excavation was conducted entirely as a commercial venture without any regard to the preservation of the more perishable material, the maintenance of a record concerning material found, its location in the site, or facts concerning the structure. The digging was carried on wherever it was felt that material might be found and all objects were sold as soon as a buyer appeared. As it was handled in this manner, the astonishing amount of material that was obtained soon became scattered here and there over the entire nation. It is even said that some was shipped to France.

The men who held the lease at first also confined their digging to the smaller attached elevations, but finally some of them attacked the larger mound. According to them, relatively little material was located in the margin of the large mound, but eventually one of them came to a vertical layer of earth that was of a different texture and much harder than had been encountered previously. Upon digging through this layer, which was approximately 18 inches thick, the inner chamber was discovered. While a large quantity of important material came from the three attached mounds, the major portion of effigy pieces, textiles, beads, engraved shells, and objects of a presumably ceremonial nature are said to have come from within the central chamber. At no time did these men dig in any of the mounds scattered over the surrounding area, but confined themselves solely to the large mound with its three smaller mounds which form the principal feature of this mound group.

A view of the Spiro Mound (Pl. 1) taken from a north northeasterly direction, shows the main entrance to the chamber cut by the excavators. A tunnel for ventilation was later cut and emerged about ten feet above and to the right of the main tunnel. The path in the foreground shows the route taken in bringing, by wheelbarrow, the debris and mound dirt out of the tunnel to the dump.

A general view of the large mound (Pl. 2) taken from a south southeasterly direction, approximately on the main axis of the group, after the six diggers had left the site, shows the haphazard pitting of the surface of the smaller mounds. The diggers had cut a vertical face (profile) roughly 20 feet in from the outer margin of the large mound. About 6 feet below the spot where the man is standing, a distinct matrix could be seen from which one of the cedar poles had been removed. No other evidence of the inner structure was visible at this point. There was, however, a large crack in the earth extending from half way up the southwest side of the big mound, across the top and down on the north side. This crack was caused, it was said, by some of the diggers having set off a charge of black powder in the inner chamber at the termination of the lease. Whether this was done in order to close the tunnel for safety or to protect the site from chance trophy hunters or because of the enmity that had sprung up between some of the diggers is not known, but it effectively served all these purposes.

All of the work inside of the structure had been carried on without the aid of mine props or bracing of any sort. While chunks of earth had at various times fallen from the walls and ceiling of tunneled areas, no one was ever trapped.

DIAGRAMATIC DRAWINGS OF THE MOUND

The original outline of the mound when viewed from the west is represented in the outline drawing of Plate 3 A. John O. Hobbs stated that the intermittent digging of individuals and groups had so disturbed the outlines of the smaller mounds that even a few years before the dig their original outline was no longer evident. Many contend that the smaller mounds joining the Temple Mound were simply one long slope from the ground level on the south to slightly below the crest of the large mound. So far as is known, there is no photograph extant of the group before work commenced. Robert E. Bell states that when he first saw the mound in 1933, he had the impression that the fourth mound at the south end was larger than the two between it and the "Temple" Mound.

Plate 3 B is a diagrammatic plan of the Spiro Mound, according to Mr. Hobbs, before the diggers began work. The three smaller connecting mounds had been dug into to a greater extent than the larger mound and were not as distinctly separate from each other as is indicated in the diagram. The distances shown are only approximate and were obtained by pacing. Erosion had also no doubt deposited soil at the base from the upper portions. The diggers estimated the height of the mound by means of a carpenter's level sighted from the top of the mound to a point on an adjacent tree and found it to be approximately 33 feet above the surrounding ground level.

About one hundred feet to the east and northeast of the large mound there was a distinct pond or slough-like depression from which the builders may have obtained the major portion of the dirt for the construction.

The plan of the large mound, with elevation shown below, is illustrated in Plate 4. The letter "F" represents the tunnel dug to the center of the mound by the diggers through mound dirt "A." A pile of broken shells which encircled the center of the mound, many of the fragments of which were said to have been engraved, is indicated by "B." Since they were originally placed in position by the builders and covered with dirt the shell heap probably shrunk through settling and decomposition until a free space, as shown in the lower illustration, appeared between the shells and the earth with which they were covered. After shoveling these shells into a wheelbarrow and removing them, the diggers said they could go entirely around the mound in this tunnel. The dots near "B" and "D" in the upper illustration represent cedar poles. They were spaced approximately six feet apart and inclined slightly inward as shown beside "B" in the lower illustration. As these posts were apparently standing unattached

except for the surrounding earth, and serving no purpose, they may have had a function only during the time the earthwork was being constructed. At "C" the diggers struck the wall of the central chamber which was entirely different in appearance and much harder than the dirt through which they had dug previously. Mr. Hobbs supplied a sample of earth which he said resembled the material which composed the wall. This was a hard, gritty substance, gray in color and with fragments of charcoal scattered throughout. Analysis of this material by Dr. L. D. Haigh of the University of Missouri revealed that it contained 70 per cent calcium carbonate equivalent, or 39 per cent lime.

Estimated distances through the various parts of the structure are as follows: (Pl. 4) "A," 26 feet; "B," 2 1/2 feet; "C," 1 1/2 feet; "D," 10 feet; "E," 16 feet. Height of "E" is 16 feet.

LOCATION OF OBJECTS FOUND IN CENTRAL CHAMBER

The location of the material found in the central chamber is shown in Plate 5 (The chamber is indicated as "E" in Pl. 4).

1. Thirty copper axes (Pls. 54, 55)
2. One gallon of pearl beads (Pl. 65)
3. Straw or reed basket containing thirty human head masks made of wood and covered with copper (Pls. 27, 28 A)
4. Stone "Alligator" effigy pipe (not illustrated in this report, since it was never located)
5. Altars, one at each of the four points of the compass
6. Two stone effigy pipes, eagle and woman (Pl. 6) and woman with mortar and ear of corn (Pl. 15)
7. A blanket and approximately one hundred pounds of shell beads on each altar
8. Twenty pipes
9. Spears and "bird" points
10. Seven maces (Pls. 35 to 41 inc.)
11. Ten "copper covered reed baskets" and four breast plates of copper
12. Burial
13. Large effigy pipe (Pls. 9 & 10) and water bottles
14. Three blankets placed one upon the other
15. Eight hundred pounds of shell beads on top of blankets

The full tragedy of the opening of the mound by inexperienced diggers is completely revealed in this summary, which can only be based upon the collective recollections of four of the diggers who were questioned concerning the location of the material taken from the inner chamber. They are agreed that the above is as true a presentation of the facts as can now be given.

The "altars," shown on the four quarters are supposed to have had a blanket and about one hundred pounds of shell beads on each. Some of the men reported that there were only two "raised places" that might have been "altars," and that these places had upon them beads and some female effigies. The report of the excavation by the University of Oklahoma group should definitely settle this question since it is believed that, if there were "altars" traces of them will have been found. But, of course it is possible that the "altars" were shoveled into wheelbarrows and moved outside.

The major portion of the engraved conch shells were found, according to the diggers, equidistantly around the wall, inside of the chamber. The order in which they were placed will never be known, nor will their total number. It is however, known that some 180 engraved shells or shell fragments have come from the earlier excavation.

The "floor" of the room was said to have been covered with two layers of cedar poles, the one layer at right angles to the other. Perhaps these poles constituted a part of the litter for the two burials which are known to have been found in the central chamber. The diggers did not search beneath the level of this "floor" because time did not permit. After removal from the mound some of the poles still showed definite copper stains. The artifacts, as well as almost the entire floor, were covered to a considerable depth with loose earth which had in time fallen from the walls and ceiling of the chamber. A pile of earth about three feet high was found in the center directly beneath the place that had been dug in the apex of the mound a few years previously. The depression left at that time had evidently filled with water from time to time which had seeped through to loosen the ceiling earth.

Fifteen or twenty burials in various positions are supposed to have been found in the southern edge of the south attached mound. A charred body, somewhat mummified and still intact, was found about ten feet from the edge of the large mound. A "straw hat" made of split cane with tassels about six inches long, made of cords, was said to have been on the head. Nine bows and about thirty long stone spears lay across the chest. The body was removed and carried out to the edge of the site where it remained as an object of curiosity for a time until it gradually disintegrated.

A double handful of shelled blue and white calico flint-type corn was found in a "copper covered basket" in one of the small mounds. One of the men stated that he was taking it home to plant, but he never reported his results to the others. The grains are said to have been in excellent condition and comparatively free of discoloration.

Much red, yellow, black, gray and green mineral pigment was taken from the site. For the most part it was contained in large undecorated conch shells whose central cores had been cut out to form bowls or dipper-like utensils. About five hundred pounds of galena balls from two to five inches in diameter were found. All had been worked into a roughly rounded form. They were located in various parts of the structure. There was also about one thousand pounds of unworked galena ore. Many large unworked quartz crystals were also present.

Many lurid stories have been told, some purporting to be eyewitness accounts, about the central portion of the large mound, its structure and its contents. Unfortunately the men who actually did the work inside, the six men who held the lease, were not interested in these details but were concerned solely with obtaining as many salable objects as possible in the shortest time. In fact, friction and distrust among them had developed to such an extent that they were watching each other more than the placement of finds. Under these conditions, it is also quite understandable that it was the policy of the diggers not to permit others to enter the inner portion of the large mound but to reserve that solely for themselves. This policy prevailed until the time of expiration of the lease when the artifacts from the central chamber, or whatever this area might have been, had already been removed and some digging had been done at the sides. Shortly after the expiration of the lease the charge of black powder was set off in the interior and the commercial excavation came to a close.

Prof. S. C. Dellinger, Director of the Museum, University of Arkansas, Fayetteville, visited the site several times during the commercial excavation. He was there during the time the central portion of the large mound was being dug, saw and purchased for the Museum some of the material as it came out of the tunnel; and talked to the diggers and heard their conversations. We are happy to include the following contribution by Prof. Dellinger.

"When I arrived at the Mound they were bringing out six or seven engraved shells, shell beads, some plain copper sheets, and two large tray-like baskets, one in wicker work and one coiled. The coiled basket contained what looked as though it may have been some sort of fruits and vegetables. In a cabin outside were a number of large engraved shells and a quantity of shell beads.

"One basket, on the ground outside when I arrived, had copper adhering to it. It was my assumption that sheet copper had been placed in the basket upon its deposition in the site, rather than the basket having been "covered" or lined with copper.

"Later on, in the afternoon, they brought out woven garments. For the most part, they were constructed of animal hair. One, however, was of feather work. A human skull with cloth and human hair still adhering was brought out of the tunnel in the mound and placed with the baskets. I purchased this skull for the Museum, as well as another already outside which they said came from the central chamber. The remainder of the skeletal material, from these two burials, was apparently thrown aside or covered up in the debris from the excavation.

"A story was current of a warrior in copper armor. This may have been a burial covered with sheet copper.

"There were four small masks of cedar with shell inlays for teeth, also a pair of antlers of cedar which seemed to have been broken from a larger mask. There was evidence that all had been covered with thin sheet copper.

"During the afternoon they carried out a number of cedar poles that ranged from four to about seven inches in diameter and were from six to twelve feet long. They told me that these poles were part of the walls of a room inside the mound and that when they struck this room it was hollow and the air seemed to rush in. Many such poles were already on the ground about the mound. They were being burned for fuel, according to the statement of the diggers.

"The poles that I examined showed no evidence of notching or of having been joined together in any way. It is my opinion that they were probably placed above the material, perhaps in cone fashion, and their possible association with mats may have tended to keep the soil in place until it hardened, for the material that was carried out was not dirty. Some of the poles may have been used as a litter for carrying.

"The fabrics, and the skull with the hair and some textile adhering, would have been damaged had they ever been washed. This is also true of the wooden masks. I feel certain that there was a cavity in the mound for the objects removed were not covered with dirt, other than a bit of dust. Furthermore, they had not been crushed by pressure. In addition it was my observation that they were very careless in handling delicate objects.

"I wanted very much to look into the chamber of the Mound, but was told that this would not be permitted. The diggers were working with miner's lamps and I crawled a short way into the tunnel with them. After I saw that they were working without any timbering to support the heavy structures above, I decided that it was quite a risk and did not argue the point further with them.

"Later, when this central area was opened by the University of Oklahoma, they found the remains of a large cane mat on the floor and above and to the sides of the parts that were left, the soil was quite dry and hard, almost like a light gumbo.

"With the facts at hand as I know them, I am inclined to think that the chamber was the grave of two important persons, there may have been more, with large quantities of artifacts, buried on a large cane mat and covered with other mats. Finally the earth roof may have been supported with cedar poles with the possibility of other mats having been placed on top of the poles.

"Whether there was a ring of broken shell material entirely encircling the chamber, but out in the earth walls some distance from the edge of the chamber, as the diggers have stated, I do not know. I heard it mentioned, and there was much broken shell around the camp of the diggers. Some of this shell was plain, some pieces had been engraved."

Description of Manufactured Objects

HUMAN EFFIGY PIPES OF STONE

It is possible that four of the stone effigy pipes (Pls. 6 to 10) represent a story of the origin of the race, or the conception, childhood, and manhood of a racial hero or demigod. The first pipe (Pl. 6) depicts the sexual embrace of an eagle and a woman. The eagle's beak touches the woman's lips and his claws clutch her shoulders. At the time this object was photographed all of the dirt and encrustations had not yet been removed and are evident in the illustration.

The second stone pipe, representing a mother holding a child, (Pl. 7) is probably made of bauxite. It is badly weathered and some of the original details are lacking. According to G. E. Pilquist, this was one of the first effigy pipes found at the site and "came from the southern slope of the mound."

Both the right and left sides of the third figure, generally referred to as "Half and Half," are illustrated in Plate 8. On the right are a foot with claws and a wing and feathers, while on the left a human arm and leg with the hand on the bent knee are indicated. According to H. T. Daniel two of these figures were retrieved. This may represent the progeny of the eagle and woman.

The fourth pipe (Pls. 9 and 10), generally known as "Big Boy," is one of the most perfectly sculptured pieces that came from the

site. This pipe weighs 11 lbs. 8 oz. It is probably of bauxite (The geologists would not commit themselves unless permitted to saw the piece into thin cross-sections and then grind it into tiny particles). It is a sculpture of a man sitting cross-legged on his feet with a hand on each knee and leaning slightly forward. His adornment consists of heavy strings of beads about the neck, ear ornaments, headdress and braided hair. The design on the back of the figure appears to represent feathers. It is probable that the clothing represented is a feather mantle like those described by Dr. Willoughby in his report on the Spiro textiles. The figure evidently lay on its face on a flat surface a considerable portion of the time when it was in use by the Indians for it shows a great deal of wear on the nose and forepart of the headdress, and the front of each knee. This gives the figure a flat-nosed appearance which it did not have originally. The three flat places are all on the same plane. Tobacco "cake" was still visible in the pipe bowl in the back of the figure at the time it was examined, and a heavy coating of red paint was still present in the indentations made by the decorations on the back. This was one of the first objects found after the diggers entered the chamber in the large mound. The excavator was feeling around in the loose dirt of the floor when his hand touched something solid. He drew out the object which was a few inches below the surface of the accumulated deposit and found that he was clutching this effigy by the arm. This pipe brings to mind another (Thruston, 1897, p. 188) of somewhat the same size and type from near Kingston, Hamilton County, Tennessee. A similar figure was found near Muskogee, Oklahoma (Moorehead, 1910, II, Fig. 494). The latter figure is sitting on its knees and feet, bending forward, has topknot, earspools, necklace, a discoidal in the right hand and two sticks in the left.

Two stone effigy pipes, one representing a man and the other a woman, seated on their lower limbs, facing the smoker are shown in Plate 13. On their laps they hold entire biconical pipes, their arms clasp around the upper parts of the bowls, the stem openings resting between their knees. A similar pipe is shown in Plate 14. This figure sits flat with legs outstretched, and the pipe bowl is grasped between his extended hands as he holds it away from his body. These pipes resemble one from the Ferguson Mound, Jefferson County, Mississippi. "In several of the southern states is found a type of image pipe which consists of a human being holding in out-stretched hands a bowl or pot, which forms the bowl of the pipe. . . Several have been discovered from Georgia and Tennessee." (Brown, 1926, Fig. 227, pl. 265). A similar concept was expressed in a pipe from Wherry Landing, Bradley County, Arkansas. "It represents a human figure seated on its lower limbs which extend under and inward diagonally. The figure which faces the smoker holds a biconical pipe. While in other respects this effigy pipe is not of a special

interest, the fact that it has an entire biconical pipe, that is to say, not only the bowl, but the portion made for the insertion of the stem, places it among a class that has few representatives. Almost invariably when a human figure is represented holding any part of a pipe, it is the bowl alone, and the stem of the pipe has an orifice to receive it in the back of the figure, and not like the bowl, outside the figure. In fact the only other exception to this rule that we know of (though no doubt there are others) is the effigy pipe of earthen ware found by us last season in the mound at Gahagan, La., Red River, and shown in our 'Some Aboriginal Sites on Red River' Figs. 13, 14, 15, 16, 17." (Moore, 1913, Fig. 47, p. 88).

The stone pipe (Pl. 15) is unique in that the bowl has the stem issuing from the side and none of the pipe is part of the effigy, but is placed in front of the seated or squatting figure. The figure may represent a woman about to grind meal as she holds an ear of corn in her left hand, and the pipe bowl itself may readily represent a mortar.

A stone pipe in the form of a human figure with two heads, one broken off, is shown in Plate 16 A. This effigy evidently represents the same idea as those of the shell engravings of double masked or two headed individuals.

The figure of a man is carved on a pipe that is apparently made of limestone (Pl. 17 A). Close inspection reveals a second figure below. The mouth of the upper individual is open and the teeth are plainly showing. The upper figure has his arms crossed and hands placed on his own shoulders. The knuckle joints, fingers, and nails are definitely indicated. This pipe reminds one of the Selsertown pipes (Brown, 1926 Figs. 218 and 222; also West, 1934 Pl. 89, Fig. 3 and Pl. 91).

G. E. Pilquist says that a "discoidal" pipe (not illustrated) was also unearthed. "It had a human effigy on the rim of the discoidal and was very chalky and not in very good condition. It did not resemble any other pipe I have ever seen."

HUMAN EFFIGY PIPE OF CLAY

The effigy pipe of clay (Pls. 11-12) was found broken in several pieces and eventually came into the possession of Glenn I. Groves of Chicago, who made this restoration. It apparently depicts the killing of a person with a blade shaped weapon, half of which is shown buried in the victim's head. The victim is much smaller than the erect figure. Portions of the victim's body, part of both legs of

the executioner, and one of the executioner's feet were missing and have been restored. Pecularities of dress of the erect figure such as the headdress, the wristlets, the anklets and the extension of an object from the back up over the head, are of particular interest. He is also wearing earspools similar to those represented on other figures.

ANIMAL EFFIGY PIPES OF STONE

A stone pipe with animal head and incised designs on the sides representing wings is illustrated in Plate 16 B. The head is broken off and missing from the animal effigy pipe in Plate 17 D. The object, possibly a jaguar, is of rock crystal and shows excellent workmanship.

A stone pipe (Pl. 18 A) evidently represents a turtle or serpent. Bits of stone are crumbling from the object and discoloration seems to indicate that the piece has been subjected to fire.

An owl effigy pipe of stone appears in Plate 19. This is a well made figure and is said to be large and made of a green stone. The dimensions are not available.

ANIMAL EFFIGY PIPES OF CLAY

An animal head on the prow of a clay pipe is shown in Plate 17 B. A pipe of clay with two raised lizard-like figures appears in Plate 17 C. One is on the front of the bowl and one on the top of the stem. Similar lizard-like figures are illustrated on a bottle from the Crenshaw Site, Arkansas. "This bottle coated exteriorly with red pigment and having in relief two lizard-like figures on opposite sides . . ." (Moore, 1912, p. 624, Fig. 123).

Two well made clay pipe figures of frogs (Pl. 18 B) show more detail of workmanship in the heads and bodies than they do in the feet. Frog effigies have been found in various parts of the United States, especially in the South. Frog pipes are reported from several sites in Mississippi (Brown, 1926, pp. 251-253); in Louisiana (Moore, 1913, p. 22); in Tennessee (Moorehead, 1910 II, Fig. 500); in Ohio (Moorehead, 1910, Fig. 485); and in Virginia (McGuire, 1899, p. 537). There are two instances (Pls. 13 and 18 B) where pipes from this site seem to be in pairs. It would have been interesting to know whether the "pair" in each case was found together. It will be noted that each pair came into the possession of a single collector rather than being divided among different individuals. This may be an indication that the digger found the two together where he had been digging just previous to their sale.

OTHER PIPES OF STONE AND CLAY

At least fifteen of the large double-stemmed "T" pipes (Pl. 20) were found in the mound and some estimates place the number as high as sixty. The latter figure however, probably includes those having one projection shorter than the other. No doubt some of the pipes had the stem, prow, or forward projection broken in the making or in later use, and these breaks were smoothed up to make such pipes as are shown in Plate 21 B. The size and shape of the available stone would also have its influence upon the finished product. The material is usually a greenish-gray shale and the workmanship is generally good. The stem is drilled from one end only to the bowl in the center. The cross-section of both the bowl and the stem is approximately round. Several of the largest pipes, when examined, still carried in the bowls a tobacco cake which was as much as 1/8 inch thick. These pipes vary from 15 inches to 31 inches in length.

Thoburn illustrates one of these large ceremonial pipes, 18 inches long, found near Old Fort Coffee, Oklahoma (Thoburn, 1931, p. 54, Fig. 25).

Three variations of the long double-stemmed pipes are shown in Plate 20. So far as is known only one double-stemmed pipe with inlays in the stem was unearthed by the earlier group of excavators. The stem of this pipe is somewhat rectangular in cross-section. Circular depressions on the sides and top of the stem evidently were for inlays of shell, similar to much of the other inlay work so prevalent in this site. No shell disk inlays were present at the time this was inspected. Circular pieces of paper were placed in the depressions before this photograph was made. There was some evidence of incised decoration on the top of the stem. Another variation of the type is also shown. Two bowls come from the conventional stem. The stem is drilled from each end to the nearest bowl and the connecting portion of the stem between the bowls is undrilled. Six double-bowled pipes are said to have been found. Some have contended that the double-bowled pipes are fraudulent, and that they have been built up from two pipes after the forward ends of the stems had been broken off. Although this is true in some cases, others are known to be genuine. The one illustrated was broken between the bowls and cemented together, but the broken ends fitted together as only pieces could that were originally from the same break.

In the top row (Pl. 21 A) the three pipes are of clay; in the bottom row the first is of sandstone and the second of shale. The latter is engraved (See Burnett, 1945, Pl. V-20/747). Various modifications of the large stone "T" pipes appear in Plate 21 B. Two

tiny "T" pipes of clay (Pl. 21 C) were double-stemmed, but in each instance one of the stems has been broken near the edge of the bowl.

OTHER STONE PIPES, POSSIBLY INTRUSIVE IN THE MOUND

The three following pipes evidently represent intrusive additions to the site due to the fact that they are forms that are not typical of Spiro and are considered to be from a later and earlier period. A catlinite disk pipe (Pl. 22 A) of excellent workmanship, and very high polish, had seven broad, short, saw-tooth projections lining one edge of the disk. Whether there were any serrations on the opposite side is not known as the pipe was broken and a section of the disk missing when it was inspected. Three disk and six platform pipes are said to have been found at the south side of the small south mound. A raised serpent design is on the sides of a well made catlinite pipe (Pl. 22 B) and a dog-like head projects past the bowl at the forward end. The figure of a rattlesnake is engraved on the bottom. According to John O. Hobbs, one side of the bowl of this pipe was cut off by the shovel and lost during excavation. The piece has been restored by the Smithsonian Institution. A platform pipe of brown fine-grained stone is shown in Plate 22 C. It has finely incised designs on the top of the platform. The platform type pipe is characteristic of Hopewell.

EFFIGIES OF STONE

The white quartz human effigy head in Plate 23 A is believed by some to have been broken from the rock crystal pipe in Plate 17 D. There is nothing to substantiate this belief. In both the front and profile views the tassel of the headdress shows faintly just below the hairline on the forehead. Objects resembling earspools seem to be a part of the headdress.

A fish effigy plummet of rock crystal is shown in Plate 23 B. It is beautifully made and highly polished.

A double headed boatstone of rock crystal has carved the head of an owl at one end and a cat-like head at the other. The illustration, Plate 23 C, shows the opposite ends of the same piece. The head of an owl or eagle is represented on one end of a boatstone in Plate 60 A, and the flare at the opposite end may indicate the tail. A boatstone shaped like a lizard, not illustrated, was also found, according to G. E. Pilquist. A stone effigy lizard pendant is illustrated in Plate 61 A, as is a double headed stone effigy turtle.

BONE ARTIFACTS

A long, flat, bone spatula shown in Plate 24 A has a wide rounded end. Several pieces of this general type, varying in length

from 8 to 13 inches, were unearthed. Most of them were broken or partially disintegrated. Three bone awls, a bone tubular bead and a circular bone plate were photographed, but are not illustrated. The bone plate has three black concentric lines as a decoration near the outer edge and a row of tiny holes three-eighths of an inch apart near the outer circumference. One hole is drilled through the exact center. The plate is three and three-fourths inches wide.

EFFIGIES OF CEDAR

A wooden blade (Pl. 24 B) has triple tangs projecting from its straight base and broad shallow serrations on the curved edge. The opposite edge of the blade is straight. Five objects at the bottom of Plate 24 C are carved from cedar and evidently represent shark's teeth.

Three human effigies of red cedar came from the site (Pls. 25-26). The tail-like projection beneath the one is a rounded extension of the same piece of material and may have been used as a handle. The checking of the wood from age is plainly visible. A portion of the head and face of the figure on the lower right has been broken off following the lines in the grain of the wood.

More than 40 human masks of red cedar were taken from the mound according to one of the diggers. In most instances the eyes and teeth were of inlaid shell. In the examples illustrated (Pl. 27) the inlay from some of the eyes and teeth is missing. Earspools are also represented on many of the masks by inlaid shell and many bear evidence of having been covered with thin sheet-copper which followed the curvatures and indentations of the wood beneath.

In the bottom row of Plate 27 are shown the concave, reverse sides of two of the masks above. Some of the red cedar human masks were almost life-size, but the four illustrated are less than 3 inches tall. These four masks were secured by S. C. Dellinger for the University of Arkansas Museum at the same time he secured the two skulls from the digger's excavation of the central chamber. Since the "Big Boy" (Pls. 9 and 10) is shown wearing earspools that are human masks it may be presumed that the two burials found in the central chamber were wearing these identical four tiny masks as earspools. In support of this theory Lynn E. Howard says, "The backs are hollowed out and tiny holes are drilled as if the masks were worn. All four of the little heads are impregnated with copper salts."

In two instances (Pl. 28 A) a mask made of red cedar had a complete set of antlers carved upon it. The inlays representing the

ear plugs on this mask are missing. Cedar had also been carved to make a wooden rattle in the form of a turtle (Pl. 28 B).

Bowls of cedar were in use by these people for the bowl rims are evident below the figures shown on Plate 29. A cedar woodduck head with eyes and beak inlaid with mother-of-pearl served as a decoration and possibly as a handle for one bowl, and a carving apparently of a wildcat adorned the other.

Two cedar dog heads, identical in practically every detail, were unearthed. Two views of one of the dog heads are shown in Plate 30 A. There were also carved cedar bear-tooth ornaments (Pl. 60 B), and a pendant of red cedar, similar to the shell pendant (Pl. 82 B), representing a rattlesnake's rattle.

STONE EFFIGY BOWLS

An effigy animal head, possibly representing a dog, projects from the side of the stone bowl in Plate 30 B. The figure has prominent nostrils, an open mouth with large tongue, and short ears with comparatively large circular shell inlays which may represent either the eyes or earspools. Two prominent ridges encircle the bowl below the rim and continue down around the neck to form a yoke. A reconstructed stone effigy bowl (Pl. 31 A) has upon the rim a badly weathered head of a bird or animal facing outward from the flange. Four incised lines extend around the bowl below the rim. Three of the lines pass below the neck in a semi-circle. Another reconstructed bowl (Pl. 31 B) is quite similar except that the head represents a human being. Another effigy bowl of limestone (not illustrated) has a head, representing a duck or bird, which rises from the edge of the rim, but faces inward.

POTTERY VESSELS

Relatively few vessels of pottery resulted from the commercial excavation, perhaps due to the rough methods of digging and the fact that there was interest only in fairly complete and saleable objects. Four pottery vessels are illustrated in Plate 32 A. The vessel in the upper left is fine shell-tempered, thin ware, and has a smooth surface which has been polished. The design is reproduced in Plate 33 B. On the upper right is a shell-tempered, smooth finished, thick vessel of brick red color. It is plain except for scattered, lightly incised designs near the rim. The funnel spout on this vessel is quite similar to one from the Cahokia Mounds (Moorehead, 1928, Fig. 6, Pl. XVII). The vessel at the lower left is of thin black ware, tempering unknown. The design around the body of the pot is reproduced in

Plate 33 C. On the lower right is a vessel of thin black ware which is shell-tempered. The smooth finish appears to have been polished. The incised decoration has been reproduced in Plate 33 A. The design, Plate 33 D, is from a small-necked pottery vessel 4 1/4 inches tall with a body 5 inches in diameter. The ware is black and smoothly finished and has a finely pulverized shell temper. The design is lightly engraved and is continuous around the body. The vessel was in the H. I. Player collection, Kansas City. The design shown on Plate 33 E is faintly incised on the body of a tan colored, pitted, bottle-shaped object approximately 9 inches tall. The drawing and description were supplied by J. S. Royer. The three pottery vessels in Plate 32 B are of a relatively heavy brown ware; all are nicely polished except the one on the right which is more porous and slightly pitted. The latter also has two holes just below the rim which were apparently for the purpose of suspension.

CHIPPED STONE MACES

A total of 15 stone maces are known to have come from the site, thirteen of which are here illustrated. The second largest mace of the entire group of fifteen is shown in Plate 34. It is 20 inches in length and is said to have been found in one of the smaller connected elevations. Although this piece was not examined it is understood to be of a quality and workmanship equal in all respects to those found within the central chamber. Four of the maces (Pls. 35-38 inc.), after chipping, were ground down smooth and then brought to a particularly high polish. Traces of red and white painted decorations are present on one (Pl. 39), and traces of a red and black painted decoration remain on another (Pl. 40). A chipped mace of jasper (Pl. 41) retains a red paint decoration. According to the information available the seven maces (Pls. 35-41 inc.) were found inside the central chamber, placed approximately at the point marked 10 in Plate 5. These maces are the most outstanding chipped stone artifacts found at Spiro, and must have had a great significance to the Spiro people. It is probable that the maces were symbols of authority or prestige displayed in ceremonies. Thruston illustrates similar maces or "ceremonial pieces" as coming from southern Tennessee (Thruston, 1897, Pl. XIV, XIVB). The mace in Plate 42 closely resembles one of similar size from southern Tennessee (Thruston, 1897, p. 236, Fig. 145).

Three chipped maces of chert (Pl. 43), according to Robert E. Bell, were found in a cache during August 1935 together with seventeen blades, similar to those in Plate 46. Bell also stated that either six or nine additional pieces were found in the same cache. Whether these additional pieces were all blades or included two other chipped stone maces of somewhat similar char-

acter and workmanship which are known to exist but are not illustrated, is not known. The two maces last mentioned measured 18 and 20 1/4 inches in length. Their present location is unknown. The lower or stem end of the mace in Plate 44 A has been broken off and lost. The piece shows good workmanship.

CHIPPED STONE BLADES

The long finely chipped chert blades constitute one of the outstanding categories of artifacts from the Spiro site. Some of these are illustrated in Plates 44 and 45. Among this group are both concave and straight base unnotched blades, plain side-notched types, long double pointed notched or elliptical blades, multiple-notched, "turkey tail," and stemmed blades. Some of these appear to be earlier types, and though used by the Spiro people, may not have been manufactured by them. Though fragmentary, perhaps the most outstanding example is the stemmed blade in Plate 44 A. While there is no way to determine its original length the part illustrated is 7 inches long and 3 1/4 inches wide, yet its greatest thickness is only 5/16 inch. The blade on the extreme right in Plate 45 is from the Brown Mound of the Spiro Group. So far as is known this is the only piece shown or described in this report that is not from the Craig or "Temple" Mound.

At least seventeen of the long, relatively narrow, unnotched double-pointed or elliptical blades of chipped chert (Pl. 46) were found in a cache in the mound in 1935 according to Robert E. Bell. Among other material in the cache were the three maces which have been discussed in connection with Plate 43. Since all of the blades had been systematically broken into several pieces, it seems evident that these blades had been "ceremonially broken" or "killed" before deposition in the site. They are shown restored. So far as is known no other type of blade except the long narrow elliptical ones was found ceremonially broken. There has been some question among certain people regarding the authenticity of these restored blades. It is known that in many cases restoration was faithfully carried out. In others, it was less accurate. An X-ray of certain of the restored blades, made by Dr. P. F. Titterington, showed some blades with broken ends that matched perfectly and some that did not match and which had plastic wood inserted between the ends. In a few instances green paint had been added in an evident attempt to simulate the copper stains which were present on so much of the Spiro material.

A curved artifact of chipped stone, (7 1/2 in. long), possibly a dagger, is illustrated in Plate 47. A total of five or six such pieces was said to have been found, according to Dr. Paul F. Titterington, and the one illustrated is the longest. All had the notched shoulder or one barb.

SMALL PROJECTILE POINTS

Many small projectile points and other small ornate chipped forms came from the site. In general the workmanship was excellent. Since small points from other sites might intentionally or unintentionally be readily substituted as Spiro points, it seemed best to present only those that were identified by qualified observers who saw the points come from the site at some time while they were present. Those in Plate 48 were photographed by Thorne Deuel who says, "the simple side-notched are most common, variations numerous including straight and contracting (from base) stems, simple triangles rare, or totally lacking." The simple side-notched points are the type shown in the three instances where points are clearly represented in the engravings on shell (Pls. 121 A and B, and 130 B).

The outline drawings (Pl. 49) are of points picked out by Robert E. Bell as being representative forms. He says, "Your original estimate of a total of 2,000 small points from the site I think is too low; 5,000 would be more nearly correct. A cache of over 3,000 was found at one time and bought by one dealer. The small points were nearly all found in caches of varying numbers. About 25 of the very nicely made points (Pl. 49, upper left corner) were found together in a cache, and so far as I know no further points of this particular form were located."

STONE SPUDS, CELTS, AND HOES

The spuds in Plate 50 are very symmetrical and have been ground and highly polished. Several of the finer spuds are said to have been of green serpentine. These artifacts are another type linking Spiro to the southeast. Moorehead notes, "As a great number of the known examples have been obtained in southern and southeastern United States, it is generally considered to be the natural habitat of this class of artifacts . . ." (Moorehead, 1910, p. 421). Spuds of a flint-like material (Pl. 51) are well represented. These have been chipped, then ground and polished, particularly toward the bit end, until they have a glass-like finish.

At least one perforated hoe was found and another object somewhat similar but without the perforation was present (Pl. 52). Perforated hoes seem of general occurrence in the southern part of the United States. Thomas illustrates one from the Big Toco Mounds, Tennessee (Thomas, 1894, p. 383, Fig. 263); another is noted from Cumberland Valley, Kentucky (Moorehead, 1910, p. 423, Fig. 371); and several are illustrated from Mississippi (Brown, 1926, p. 89 to 92).

A group of celts and diggers is shown in Plate 53. Pecked, ground and polished celts, a thick adz which was probably a re-sharpened celt, a double-bitted chipped quartzite axe and a spade of dark red quartzite, approximately 11 inches long and slightly curved when viewed from the side, were items of this type. Four armloads of rough spades and diggers are said to have been located in one place in the mound.

COPPER AXES WITH WOODEN HANDLES

A cache of copper axes (Pl. 54) is shown lying upon matting just as it was found. This group was discovered just inside the central chamber at the left of the tunnel through which the diggers entered from the north. The axes were lying free of any debris and were pried up and carried out just as they were by Hobbs and K. A. McKenzie. The men stated that it looked as though the owners of these implements had simply carried their tools into the room and laid them down in a pile. Plate 55 illustrates axes taken from the cache. The wooden handles contain inlays of shell near the bit ends. Some of the handles are said to be of persimmon. While this wood has some resistance to decay, the handles as well as the matting were probably preserved through association with the copper. The presence of such a large amount of copper here and there throughout the site is no doubt the reason why a great portion of the more perishable material remained intact. The handles are carved to form a swelling at the ends below the grips and are perforated through the end below the swelling in the same manner as the monolithic stone axes (Pl. 56). The wooden handles are carved quite differently at the forward or bit end. The carvings in both Plate 54 and Plate 55 are probably meant to represent birds, perhaps the pileated woodpecker, and it is thought that the objects projecting from the belts of some of the characters shown on the engraved shells are meant to represent axes such as are shown in these illustrations. According to John O. Hobbs a total of about thirty axes with wooden handles and copper heads came from the mound. Some of these had pieces of mica adhering to the handles.

COPPER AXE HEADS

Several spud-shaped copper objects are probably heads from the above wooden-handled axes. A copper "cleaver" was frequently mentioned as having been excavated but this object was never located. It is not known whether this might have been a monolithic axe of copper or simply a copper axe head of larger and different type. A three-quarter grooved axe-head of solid copper and a "flat-grooved axe" of copper, the latter still covered with fragments of matting, were found at Spiro (Burnett, 1945, Pl. LXXII).

STONE AXE HEADS

About 40 pecked, ground, and polished stone axe-heads are said to have been found. Both three-quarter and full-grooved types are supposed to have been represented. As stone axe heads are a more usual form of artifact they would, no doubt, receive less attention and thus more quickly lose their identity with the site as a result. The stone axe-heads supposed to be from Spiro have generally been met with much scepticism. The diggers that were questioned about the type of grooving on the stone axe-heads had only a very hazy recollection of the subject; apparently they had simply never differentiated between three-quarter and full-grooved types. As a three-quarter-grooved copper axe-head has been identified with the site this would seem to help authenticate the claim for stone axes of this same type.

MONOLITHIC STONE AXES

At least four complete monolithic stone axes and one fragment were present (Pl. 56). The handles expand at the ends below the grips and each is perforated through the end below the swelling in the same manner as has been mentioned in the case of the copper axes with wooden handles. That part of the handle extending forward past the bit in each of the outside axes in the illustration has been engraved on the sides, presumably to represent a mouth and teeth. Some of the axes were of green serpentine. These axes bear a remarkable resemblance, even to the eye in the end of the handle, to one found on the bank of the Cumberland River opposite Nashville, Tennessee (Jones, 1876, p. 46, Fig. 11). Moorehead pictures such an axe from Etowah and states: "Ten or twelve monolithic axes have been found in the central Southern portion of the United States, but they are not common." (Moorehead, 1932, p. 82, Fig. 52). Similar axes were discovered in York district, South Carolina and in Mississippi County, Arkansas (Thruston, 1897, pp. 258,259).

STONE PLUMMETS

Fifteen decorated stone plummets are illustrated in Plate 57. The top row has turtle decorations; the bottom row, snake; the first in the middle row, human; and the rest, animal. The center, bottom row, shows the best workmanship. It has a high polish and a snake carved in relief encircles the body of the plummet, with the head forming the knob at the upper end. A smooth, highly polished fish effigy plummet of rock crystal is shown in Plate 23 B.

STONE PENDANTS

A stone effigy lizard pendant is shown in Plate 61 A. A few plain flat pendants of shale were also reported. One of those examined was 3 11/16 inches long, diamond shaped, and drilled through the center. Apparently the people at Spiro did not go in very heavily for such prosaic things as stone pendants, since they had all the fancy engraved shell pendants and gorgets from which to choose.

DISCOIDALS

Both bi-concave and bi-convex discoidals were represented. A group of five discoidals (Pl. 58) is said to have been found stacked one upon the other in the manner shown. At least some were of red granite and some of polished cream and pink veined quartz.

BOATSTONES

In addition to the double-headed owl-cat effigy boatstone of rock crystal already mentioned (Pl. 23 C), and the effigy (owl head at one end and tail-feathers at the other) boatstone (Pl. 60 A), six non-effigy boatstones can be described. Four of these are illustrated in Plate 59. They are very perfectly made and deeply dished, and together with the second boatstone mentioned, were found in the smaller mound adjacent to the large mound. The remaining two examples are (1) a plain, polished boatstone of rock crystal, and (2) a highly polished brown stone boatstone with two holes drilled through the bottom. These last two pieces are not illustrated.

BANNERSTONES

Two versions of the winged or butterfly bannerstones and a pick-shaped bannerstone appear in Plate 61 B. A fourth bannerstone of rock crystal is the butterfly type. The pecking process was nearly finished but it has not been polished, nor drilled. It is said that a total of six or eight bannerstones of butterfly, hour-glass, and pick types were found.

The excavators insisted that about forty medium sized black stone beads and a bannerstone all strung together had been found in the largest of the small mounds. They said that while the cord or thong that held the beads was so badly decomposed that it immediately disintegrated, the drilling in the bannerstone was large enough that one of the beads remained lodged in the opening. The men had no idea where the bannerstone was at that time, but about two years later, while Spiro material was being examined in a collection, the banner-

stone at the left, (Pl. 61 B) with a bead still lodged in it, was observed. This had been among a group of objects which the owner had purchased from one of the diggers during the excavation. The edge of a black bead, imbedded in the opening, may be seen in the illustration. This is no doubt the bannerstone to which the excavators referred. This circumstance may also throw some light upon the manner in which bannerstones were utilized (Moore, 1916, pp. 432-433, Pls. IX-XII).

OBJECTS OF ROCK CRYSTAL

The proficiency of the people of Spiro in working quartz or rock crystal is evidenced by the presence of the following artifacts of that material, all of which have been mentioned previously: effigy pipe (Pl. 17 D); human head effigy (Pl. 23 A); effigy boatstone (Pl. 23 C) and plummet (Pl. 23 B). In addition other known artifacts of this material not illustrated include an undrilled butterfly bannerstone and a cylindrical object, both with pecking process almost complete, but neither piece polished; a well made, highly polished plain boatstone; three ground and polished beads, only one of which is drilled; two small projectile points, 7/16 and 9/16 inches long; another projectile point; and a core of exceedingly clear rock crystal from which material has been flaked.

MATTING AND BASKETRY

Samples of basketry (Pl. 62), which were probably the bottoms of small baskets, had been partially burned. Larger pieces of matting and basketry are illustrated in Plates 54, 67, and 68. The diggers frequently stated that they had found various objects in "copper covered reed baskets," but if so, none of these baskets were salvaged sufficiently intact to be identified later. Since "copper covered reed baskets" were mentioned so many times by the diggers it may be well to state that while the evidence one way or the other is very meager, it is the opinion of S. C. Dellinger that these were simply baskets in which one or more thin sheets of copper had been placed, perhaps below the other material that the basket might contain, rather than the baskets having been covered or lined with copper.

TEXTILES

A greater quantity of textiles was found preserved in the Spiro Mound than in any other known prehistoric site within the United States. With the exception of a few small fragments, it is believed that most of the pieces that came from within the central chamber have been salvaged. The larger pieces, some of which measure 11 to

26 inches in width and 21 to 53 inches in length, probably came from the pile of "blankets" in the center of the chamber (Pl. 15) or from the "altars" on the four cardinal points (Pl. 15). The subject of the textiles is covered in detail in Dr. Willoughby's accompanying report. Three textile fragments (Pl. 63) have in three colors, yellow, red and black, a particularly distinct design which represents the wing feathers of an eagle.

CANE HAIR COMB

A cane comb (Pl. 64) was found lying upon a piece of copper. The 13 pieces of cane which are bent in hairpin fashion to make up the 26 teeth of the comb, and the cord which binds the cane teeth together are well preserved due to the presence of copper salts. A bone comb of somewhat similar appearance was found with a burial in the Rose Mound, Cross County, Arkansas (Moore, 1910, p. 285, Fig. 14).

RAWHIDE HEADBAND WITH IMITATION BEAR TEETH OF CEDAR

A headband fragment of rawhide (Pl. 60 B) is ornamented with pieces of wood carved in the shape of bear's teeth. The teeth were covered with sheet copper. The drawing has been extended in outline to indicate the probable size of the object. Actual bear teeth as ornaments, perforated for attachment, were found but are not illustrated.

PEARL BEADS

The re-strung pearl beads (Pl. 65) represent but a small portion of the two gallons which were taken from the central chamber. Most of them were calcined and worthless as jewels. The major portion of the pearl beads were found in conch shell containers (Pl. 82 A, left) from which the center core and part of the shell wall had been removed. Both pearl and shell beads are also reported as having been in "copper covered reed baskets." One of the McKenzies stated that he found pearl beads in a "copper bucket" and that he cut it with a shovel, whereupon the pearls rolled out over the ground and caused much excitement. Some of the pearl beads were discolored and this condition may have been the result of association with copper. Occasionally the baskets contained strands of beads, and some of the fiber-like strings were said to have been strong enough to support the beads temporarily. Most of the pearl beads were quite round and well formed though considerable numbers of pearl slug beads (Pl. 65 B) were also present.

SHELL, STONE AND BONE BEADS

One thousand two hundred pounds of shell beads were obtained. The beads were weighed in order to make a division of the spoils between the six diggers. Each man received 200 pounds as his share. In addition, after the dig was over, large numbers of beads were found scattered through the dump to the north of the mound where the dirt from the excavation was deposited. In a personal communication, Robert E. Bell said: "There were fourteen gunny sacks of shell beads taken from the central room. I actually saw nine sacks, so I have no doubt that your figure is conservative." Dr. Bell supplied the bead samples for the drawings in Plate 66.

The principal forms of beads present were the disk, oval, tubular, round, hour-glass, and "bottle" types (Pl. 66). There were also long flat oval beads, slightly cupped by the natural curvature of the shell used (Pl. 68 A). The latter were for the most part drilled through the long way, parallel to the natural surfaces of the shell. Many of the beads that were longer, and larger in diameter were simply the cores of the shells, drilled lengthwise, with the spiral crease of the core remaining on the bead. Some of the beads appeared to have been dyed because coloring had penetrated the material. The color was a definite black. That this may have been due to carbon penetration through association with a cremation or because of the burning of a structure is doubtful. There were three or four large, thick, disk shell beads upon one side of which appears a human face carved in relief. Some of the disk shell beads had been cut from fragments of engraved conch shells (Pl. 66, Top row).

Small shell beads imbedded in a shield of basket work and leather (Pl. 67) and a bundle of long beads resting upon matting (Pl. 68) are both unique because in each instance the beads still adhere to the medium on which they were found. There were originally many more beads upon the shield, but those that were loose were removed. While there is nothing to substantiate the idea, it is possible that the matting with the bead bundle was the lining of one of the copper covered reed baskets previously mentioned.

A relatively small percentage of the beads were of stone. These were of a dark color and highly polished. There were also a few tubular bone beads.

COPPER COVERED WOODEN BEADS AND COPPER BEADS

A few oval wooden beads, covered with copper, were found. They were made of cedar. Thick disk beads of copper (Pl. 69 D) averaged about 1/2 inch in diameter and 3/16 inch in thickness. About a quart of these were found.

COPPER HAIRPINS

Three different types of copper hairpins are shown at top of Plate 69 A. While only one example each of the hairpins on the right and left came from the excavation, a total of five similar to the center pin was obtained. Concerning possible use of these, J. S. Royer says, "These items suggest hair ornaments. All are double-layered sheet copper and the copper is bent back upon itself and clinched at the opposite edge which gives a similar appearance to each side. Two still retain the bone shaft which projects into the objects between the two layers of copper. The largest, on the left, has a groove extending up the middle on one side; a shaft may have been bound in this depression. The piece on the right has three pairs of perforations and still retains cords which are looped through each pair of holes so that the cords span the mid-portion of the object."

SOLID COPPER SNAKE EFFIGY

A badly corroded object of solid copper seems to have been fashioned to represent a snake (Pl. 69 B). It is possible that this is a bent copper needle.

COPPER CONE SPEAR POINT

A copper cone (Pl. 69 C) evidently served as a spear point as the broken end of a wooden shaft still remains in the open end of the cone.

COPPER NEEDLES

It was estimated that 150 long solid copper needles, round in cross-section and pointed at each end (Pl. 69 E), were found. They vary in length from 7 to 14 inches and in diameter from 1/8 to 1/4 inch. Thorne Deuel stated that while he was at the site in 1933 on the Archaeological Survey of the Mississippi Valley for the University of Chicago, some of the copper needles found were rectangular and some were square in cross-section. He also mentioned the presence of two hollow copper hemispheres. These were approximately 23 mm. and 36 mm. in diameter.

Thoburn reports "a solid copper spindle 12 inches long, tapering to almost a needle point at either end" from a mound in the Fort Coffee bottoms on the flood plain of the Arkansas River, eight miles northeast of Spiro (Thoburn, 1931, p. 69). Another is reported from a mound in Sullivan County, Tennessee (Thomas, 1894, p. 352, Fig. 231). Since some of the copper needles, double-bowled pipes and restored blades were definitely faked by certain of those who purchased

from the diggers, this fact has cast suspicion on all artifacts of these types from the site even though some of each are certainly genuine.

A badly corroded flat elliptical-shaped artifact of copper, not illustrated, may be a blade or spear point.

EMBOSSED COPPER PLATES AND FIGURES OF EMBOSSED SHEET COPPER

The Spiro Mound contained many embossed plates of thin sheet copper. Statements by the diggers concerning their presence, as well as statements by certain dealers to the effect that a number of the plates had passed through their hands, even though they were later unable to recall to whom they had been sold, prompts the belief that the eighteen pieces of sheet copper illustrated represent only a small portion of the total. In fact, some of those associated with the dig estimated the total number of copper plates to be as many as seventy. Most of the copper plates from Spiro were little thicker than heavy paper. Due to their thinness they were quite fragile, particularly in those areas where corrosion had been most active. The plates were evidently made either from hammering out chunks of native copper ore or from the relatively thin sheets of ore that are said to exist. All of the copper plates were embossed.

The copper plate (Pl. 70) includes concentric circles, elliptical blades and eye decorations. This design is almost identical with one from the Florida Sand Mounds near Mt. Royal (Moore, 1894, Pl. 1).

Copper plates are reported as coming from Moundville, Alabama (Moore, 1907, p. 399); from Hollywood Mound, Richmond County, Georgia (Thomas, 1894, p. 320); from Etowah, Georgia (Willoughby, 1932, pp. 20-51); from Malden, Dunklin County, Missouri (Fowke, 1910, p. 98); from Union County, Illinois (Thomas, 1894, p. 161, Fig. 85); from Peoria, Illinois (Thomas, 1894, p. 309). and from the Hopewell Group, Ross County, Ohio (Shetrone, 1930, p. 128).

Two human heads and a copper feather hair ornament appear in Plate 71. The most noticeable difference between these heads and those that appear on the engraved shells is the presence of roached hair and the absence of a headdress.

The embossed figure of the spotted eagle appears on a drawing of a copper plate (Pl. 72). This drawing was made by J. S. Royer. Eight copper rivets, the irregular shaded spots, hold another sheet of copper to the piece depicting the spotted eagle. The design on

this second piece suggests the pouch hanging at the waists of figures on the copper plates from Etowah (Willoughby, 1932 p. 32, 34, 36). Two round holes have been drilled through the plate almost directly above the right foot of the eagle and another through the upper part of the pouch. At the extreme upper right of the entire fragment the copper sheet has been bent back upon itself. Another embossed copper spotted eagle figure is shown in Plate 76. The spotted eagle also is shown on an engraved shell fragment from Spiro (Pl. 102 A). These are comparable to the several spotted eagles on copper plates taken from the Etowah Group, Mound C (Willoughby, 1932, pp 20, 26, 28) and from Malden, Dunklin County, Missouri, (Fowke, 1910, Pls. 15-19).

Another example of the use of copper rivets is illustrated in the figure of the copper feather (Pl. 71). At its lower end a second sheet of copper is attached to the first by seven rivets. The function of this additional piece is to hold a wooden quill. Two other copper feathers are illustrated in Plate 74. One retains its wooden quill and four perforations for the attachment of the quill are evident in the other. These closely resemble the copper head ornaments from Etowah (Willoughby, 1932, p 44, fig. 19).

A human head of sheet copper wears an earspool, copper feather and other ornaments (Pl. 73). The two-pronged eye design is also present. The circular copper pieces below are the coverings from earspools. Two snake-like figures of embossed sheet copper are illustrated in Plate 75. In each instance there are six perforations at the forward end. These are evidently for attachment in some fashion and may be for holding a wooden or bone staff or quill, as in the case of the copper feathers. The eagle effigy of sheet copper, shown in outline in Plate 76 was found in April 1935, according to Robert E. Bell, who was present when the object was unearthed. Two small copper sheets at each side of the figure, which apparently represent wing feathers, were tied to the pieces of wood shown directly beneath, and these in turn, were tied on each wing. The eagle, fully assembled, is illustrated at the bottom of Plate 76. As this drawing was made from a photograph of the weathered object rather than the artifact itself, some details may of necessity be lacking.

Three objects of sheet copper, probably all hair ornaments, are shown in the drawings in the top row of Plate 77. These represent the tail-feathers of a bird (this piece still retains the staff or "quill"), a bird head, and a conventionalized feather. The discolorations due to the feather having been placed upon basketry are evident in the drawing. This seems to be added proof that copper objects were contained in baskets. There were two bird heads but the

second was more badly weathered. A snake figure cut from embossed sheet copper is just below. At the bottom of this illustration is an embossed copper plate and two carved rectangular wooden tablets covered with embossed sheet copper. The decoration on one of the two rectangular tablets is concentric circles surrounded by four weeping-eye designs, and on the other are concentric rectangles with concave sides. The embossed copper adhering to the latter does not follow the design carved on the tablet, but had a different embossed design as indicated by the eye design near the center. The copper adhering to this wooden tablet probably was not its original cover. The copper plate (Pl. 77, lower right) has embossed upon it a squared design formed by four similar ovoid design elements outlined by hatching. The center of the square is a series of concentric circles.

Without question the embossed sheet copper presented in this report represents only a small part of the total retrieved. Evidently both the dealers and the collectors who obtained Spiro material were little impressed by the corroded and discolored sheets, even though closer inspection would have revealed figures and designs of great interest. Here and there in collections over the country there should be Spiro copper plates that may be available for future study, if they have not already been discarded. According to Kenneth G. Orr a number of the plates, all corroded together, are known to exist. If it proves possible to separate these, a number of additional Spiro designs will become available for comparison.

It is possible that some of the larger copper sheets originally overlaid wood, as is illustrated in the small copper plates (Pl. 77 bottom), the elliptical blade-like pieces (Pl. 78), and the earspools of cedar. The wooden blade in Plate 24 B was also probably originally covered with copper. The covering of all these objects is the same process, the cutting of a design in wood and the covering of this base with sheet copper which is then impressed into the design below.

No studies have been made to determine the origin of the Spiro copper; it has been assumed that the copper came from the Great Lakes region, but it may have come from Mexico. If at some future time the origin of the copper could be definitely ascertained, it would be of great interest from the standpoint of the contacts that the Spiro people may have had.

BLADE-LIKE CEDAR OBJECTS PARTIALLY COVERED WITH EMBOSSED SHEET COPPER

Sixty-two of the flat, elliptical, blade-like objects (Pl. 78) made of cedar were unearthed. Each end on one side is covered with an embossed copper plate the edges of which are bent over the thin margin of the wood sufficiently to hold the plate in place. The design on each one seems to have been made by impressing the sheet copper into the depressions of the design that had already been carved in the wood. The blade-like objects seem to be in pairs according to size, shape, and decoration. Fragments of cord and rawhide which were wrapped around the wood in the center of the piece, between the copper sheets, still adhere. The length of the objects varies from 8 to 14 inches.

COPPER COVERED OBJECTS OF WOOD AND STONE

Among the wooden artifacts covered with sheet copper were beads, masks, bear teeth, rectangular wooden plates, the thin blade-like elliptical objects, the triple tanged wooden blade and earspools of wood and stone. Probably in all cases the wood used was red cedar. "Wood plating or the covering of wooden forms with sheet copper, was common in Ohio and southward through a large part of the Mississippi Valley. These covered objects included beads, ear pendants, buttons, parts of headdresses, and many other articles . . . From covering wooden forms to embossed ornamentation is but a step." (Willoughby, 1932, p. 46).

EARSPOOLS

According to some estimates as many as four hundred pulley-shaped earspools (Pl. 79-80) were found. Most of them are made of stone, a shale, though some were of cedar. Nearly all have some decoration upon them. With few exceptions they were found in pairs that were almost identical in size, material and design. In nearly all examples, thin embossed sheet copper covered the faces of the spools when found. In fact, in a number of instances, the copper coverings were sufficiently well preserved that even after handling they still remained on the objects. The design is engraved on the outer face of the stone or wooden spool as well as embossed on the copper cover. The spools show excellent workmanship. The outer face is circular and the diameter varies from 1 3/4 to 3 1/2 inches. The outer face is often of a considerably greater diameter than the inner. Many are perforated through the center and have a smooth cylindrical bore. Drawings of the designs appearing on twelve of the earspools appear in Plate 81. Fragments of badly corroded copper still adhere to the

face of the third spool, top row. Thoburn reports: "Other items included . . . pulley-shaped disc ear ornaments, made of polished stone and partially encased in copper. These last come in pairs and are similar to the disc-shaped ear ornaments once commonly used in tropical America." These occurred in a mound in the flood plain of the Elk and Neosho River on the boundary line between Ottawa and Delaware Counties, Oklahoma (Thoburn, 1931, pp. 57-58, Fig. 26).

OBJECTS OF SHELL

A shell hoe, drilled through the center, and a bowl made from a large marine shell are shown in Plate 82 A. Many of the beads as well as some of the mineral pigments are reported to have been found in such bowls, which were made by removing the central core and a part of the shell wall. The parts removed in the making of the numerous bowls, both engraved and plain, were utilized as material for the manufacture of the various types of shell beads found in the site. The two beads showing bits of engraving (Pl. 66) were probably made from broken pieces of engraved shells.

Pendants were made from the cores of conch shells (Pl. 83 B) and drilled through the small end for suspension. Approximately 500 of these pendants, varying in length from 4 to 10 inches are said to have been found. They obviously played an important part in the ceremonial regalia of these people since on many of the shell engravings they are depicted suspended from a string of large shell or stone beads. Similar pendants were used in the southeast and at Cahokia (Moorehead, 1928, Pl. XXIV, Fig. 6; Titterington, 1938, p. 10, Figs. 36-37).

A shell fishhook is illustrated in Plate 83 A. The artifact shows the groove, made for purposes of attachment, encircling the shaft near the end. There were at least a dozen of these shell fishhooks, most of them badly weathered. Apparently all of the fishhooks were made from mussel shells rather than from the large marine shells. A comparable copper fishhook is reported from Moundville (Moore, 1905, p. 235, Fig. 164).

ENGRAVED SHELL

The Spiro Mound is outstanding because of the quantity and variety of the cultural material found, as well as the quality of the workmanship evidenced in this material. The most noteworthy point about this site, however, is the fact that its builders not only preserved their belongings here but also left a pictorial record of their use. At no other known site north of Mexico has so extensive a record of prehistoric ceremonies, uses, and customs been preserved. This record has been kept, for the most part, through engravings made upon the outer surfaces of large, complete marine shells, whose

center cores have been removed so that the shells became bowls or dipper-like utensils. There are also sixteen engravings on gorgets, which were made from smaller pieces of these conch shells. The importance of the shells is indicated by the fact that they had to be transported the long distance from the Gulf of Mexico and the large number present. There were at least eighty-six almost complete shells and ninety-four smaller, weathered and fragmentary pieces remaining after the rough handling of the commercial dig.

It is believed that nearly all of the objects illustrated in the engravings on shell were actually present in the mound, or at least present in the community which the mound represented. Some of the objects depicted, which so far as is known were not found, may have been of more perishable material and so lost through decay. The engravings evidently represent the more important religious and governmental ceremonies of the people of Spiro.

SHELL PENDANTS

A shell pendant in the form of a rattlesnake rattle and a small, long-tailed, bird-like effigy, the body of which is approximately round in cross-section, appear in Plate 82 B. A second imitation rattle, but made of cedar, was unearthed. Two circular shell pendants are carved in low relief (Pl. 84). The upper has a right hand with an "eye" in the center of the back of the hand; finger nails and knuckle creases are indicated. The wrist, which carries the hole for suspension, extends beyond the shallowly serrated circular body of the piece. The lower pendant has a bas-relief twelve-pointed sun design.

SHELL CAMEOS

Three cameo-like objects are carved from shell (Pl. 85). Each bears a human face carved in bas-relief. There were originally four, and it is said that they were found in a box of cedar about 4 inches square with a top of mica. The box was fragile with age, so the workers tore off the mica top, removed the shell pieces, and threw the remainder into the dump. It is understood that these were found in one of the smaller connected mounds. Recently the owner of the three illustrated, H. M. Trowbridge, came into possession of the fourth piece. Some bits of mica still adhere to the surface which gives support to the contention of the diggers that these cameos or medallions were found under a mica top. The heads are in pairs, representing in each pair a man and a woman. In one pair the forelock hangs to the right, in the other to the left. The features of the men are much coarser than are those of the women and in each example the man has a single line dropping straight from the center of

each eye to the chin. These lines probably indicate a narrow paint decoration. Line drawings, by Mr. Trowbridge, of all four cameos appear below them.

SHELL GORGETS

One of the least intricate designs of the Spiro gorgets was produced by cutting away four wedge-shaped pieces leaving a cross in circle design or world symbol (Pl. 82 C). Two such gorgets, almost identical, were unearthed. The gorget representing two human hands (Pl. 82 D) is discussed in connection with Plate 91 C in which a drawing of this same piece is illustrated.

A shell gorget (Pl. 86) has five human faces in relief located at the center and in the four quarters made by the bars of the cross or world symbol. The two lower figures are upside down. The eye designs are particularly noteworthy. The outer point of the eye design is short and squared. The inner point of one eye is long and tapering, the other being wavy. This is true of all five faces. These same designs, with variations, appear on copper (Pls. 70-71), on earspools (Pl. 81), and on a large engraved shell, not illustrated, which shows a series of weeping eyes alternating with parallel lines and ovals. This eye design is characteristic of Etowah, according to Willoughby, who writes: "The design surrounding the eye is characteristic of the spotted war eagle, it usually has two points, though sometimes three . . . The occurrence of this design ranges from Madisonville, Ohio, to Florida, and from western Virginia to Missouri. In one or two examples from the north of the area one of the arms of the design merges into a lightning line. This merging is also shown in some of the shell gorget 'masks' figured by Holmes." (Willoughby, 1932, pp. 37-38). A variation of the design is noted by Moorehead from the Cahokia Mounds: "The copper plates found in Dunklin County, Missouri, and described by Mr. Fowke in Bulletin 37 of the B.A.E. report present a characteristic Cahokia design. A fragment of pottery is illustrated in the figure above. On this is the same symbolic bird-head-eye design present on all the copper plates. This was generally used at Cahokia." (Moorehead, 1922, p. 36).

A human figure (Pl. 87) complete with horned headdress, earspools, and a world symbol displayed on the body has a hole drilled horizontally entirely through the extension above the head. A gorget cut from shell in basket weave design, a variation of the world symbol, (Pl. 88 A) has three concentric circles in the center. A gorget of similar outline is reported from central Tennessee (Thruston, 1897, p. 373, Fig. 229). Two similar fragmentary gorgets of wheel-like design were found, the more complete of which is illustrated in Plate 88 B. Parts of the shell have been removed to form a spoke-wheel design. No doubt these gorgets represent the eight pointed

world symbol that seems to be characteristic of Spiro (Pls. 89 B and 101 A). A two-headed human being is shown on a gorget in Plate 88 C. A central shaft with dotted circles divides the body from the waist up, each half having a head and an arm with hand. The heads with different headdresses, look inward, facing each other. The figure wears a rectangular breech clout which is almost a skirt. It is fringed and decorated along the bottom with strands of two circular beads each. The original edge of the gorget is weathered, but four encircling lines remain. According to Robert E. Bell this was found in May, 1935. This figure was drawn from a photograph of the weathered shell piece so all of the details may not be exact.

A portion of a circular gorget (Pl. 88) shows a man in full regalia. The figure holds a long knife or blade (Pl. 46) in one hand, and in the other a bow which is slightly longer than the figure's height. The blade is similar to one held by a man on a gorget from eastern Tennessee (Willoughby, 1932, p. 55, Fig. 27). That part of the other half of the gorget which remains would indicate that a similar figure appeared on the opposite side of the piece as the bow and a portion of the sash are present. The series of dotted diamond-shaped designs on the belt of the figure in Plate 88 D and the dotted circles in the breech clout on the figure in Plate 88 C are not of usual occurrence on sashes or breech clouts. It is also of some note that the sash worn by the figure in Plate 88 D has three ends behind and one in front.

Two human figures who are possibly engaged in a religious rite appear on the gorget in Plate 89 A, for on their near hands they support vessels from which rise entwined lines that could represent smoke or vapor. In their far hands they hold aloft objects that contain a world symbol inclosed in a double circle. The vessels, almost identical, are decorated with curved, parallel lines. The men wear about their necks something which terminates in a tassel. Their garments have a decorated border at the bottom. In the center, just above the vessels and resting on the rims, is a circular object consisting of a world symbol in the center, encircled by lines that are cut by spoke-like sections. The illustration of the left half of this gorget has been in the writer's possession for years; recently the right half was secured. The two halves fitted together perfectly. Plate 89 A is the result of this reconstruction. A second gorget probably depicts the same rite (Pl. 90 B). However the entwined lines of vapor issue from a single urn which is supported on a column placed midway between the two persons facing each other. The column is decorated by four sets of concentric circles. Both figures wear seemingly thick garments, complete with knotted sashes, tassels, mufflers, wristlets, knee bands and moccasins. The skirts are fringed, that on the left being adorned by four cross-shaped designs, and that on the right by one large concentric cross pattern. Each figure has a close fitting head covering and beaded forelock. The

faces have a double paint mark from the mouth extending backward below the ear, cut by a curved diagonal paint line up toward the ear. While it is difficult to know how much detail has been removed by weathering, apparently the four figures on the two gorgets which illustrated this rite wear about the same paint decoration. Objects project upward from the back of the garment worn by each in Plate 90 B. These may represent quivers for holding arrows, and are similar to the extension of the garment worn by the figure engaged in a human sacrifice as depicted by the pottery pipe (Pl. 11 and 12). The near hand of each figure is extended to support the urn from beneath, the far hand of each holds above and resting on the rim of the urn, an oval object decorated by three parallel lines. A large swan-like bird with outstretched wing is supported from the back of the figure on the right (The illustration as published is reversed). From the back of the figure on the left extends a large circular object, probably a shield with design representing the sun.

On an almost complete shell gorget (Pl. 89 B) two human figures are standing back to back. The figures give an altogether different impression than do any of the others heretofore shown. Their peculiar head coverings, their leg coverings that seem to be leggings with knee cuffs, and their moccasins with the cuffs turned down below the ankle all further this impression. These figures may be dressed for winter weather for they convey the idea of being bundled up. In addition to the head coverings which extend below the ears, and the leggings, they wear garments reaching from the throat to the knee. The lower parts of these garments are decorated with horizontal lines and what may be fringe. One garment shows a conventionalized cross, the other concentric circles. Suspended between their shoulders are objects which might well be quivers. Reaching upward between the two figures is an entwined object from which hangs a conventionalized raccoon, the markings on the head and tail being very distinct. To the right of the figures is an eight sectioned world symbol.

Plate 90 A shows the drawing of a human being from an engraving on a circular gorget. The holes for suspension are on each side of the figure's right wrist. This figure is the only one, with the exception of the fragments shown in Plate 127, that seems to wear tattoo or paint decoration on the body. It has inverted weeping eye decorations on the elbows and bands of tattooing or perhaps beads on the wrist just below the elbow, on the thighs, and above and below the knees. The shoulders are probably covered with pads having concentric circles, since they give an impression of great width in comparison to the size of the rest of the body. Face paint surrounds the eye, extending from the mouth to just below the earspool, and on the

front of the neck. The hair is stretched backward and held in the figure's left hand. He wears a perforated gorget that has a curved tail, or perhaps a feather, extending to the belt. The belt is wide, probably beaded, ending with a tassel on one end and a hooked extension on the other. He also wears moccasins with cuffs. If this figure is viewed as it is illustrated, with the individual upright, it appears to be a man running. However, if viewed as it would be if hung by the suspension holes, the man might be suspended over an object for sacrifice, as is suggested by Burnett: "From the positioning of the suspension drillings it might well be that the engraved figure may be recumbent with the head retracted and the throat exposed, possibly representing a sacrificial rite. Two wrinkles in the rear neck realistically portray the head being drawn backwards . . ." (Burnett, 1945, p. 32). The elaborate body painting may have been in preparation for sacrifice.

A fragmentary gorget representing about one fourth of the original piece is shown in Plate 91 A. A figure faces outward. Its dress is reminiscent of Plate 89 B with a variant in skirt decoration. Six lines evidently encircled the gorget as compared to the four in Plate 88 C.

Five holes are drilled entirely through the human face shell gorget (Pl. 91 B) as represented by the round dark areas. The figure is in relief. The eye areas are quite deep in contrast to the eyebrows and bridge of the nose. The lips and paint streaks are also in distinct relief.

A gorget in effigy of two human hands, a right and left, are cut from shell (Pl. 82, engraving Pl. 91 C). They are joined on one edge as well as by a wristlet marked in squares and containing two perforations. The world symbol appears in each palm. In two instances (Pl. 138 C and 138 D) shell fragments from Spiro have upon them an engraved human hand. In all three examples finger creases are evident and in one the thumb nail is present. Each of the two fragments has an eye in the palm. Wristlets of horizontal lines with alternate vertical cross bars are worn on two of them. The wrist decoration in the third includes horizontal lines and the head of a small animal, similar to the one shown in Plate 134 B, which projects from the side of the wrist. In the pendant (Pl. 84 A) the eye is in the palm and finger nails are shown. The hand shown with the snake in Plate 112 A has finger nails indicated and has a world symbol in the palm. Shetrone has said: "Perhaps the eye and hand symbolize the hope of life after death" (Shetrone, 1930, p. 396). Hands with heads and long bones have been found incised on pottery from Walls, Mississippi (Shetrone, 1930, p. 387, Fig. 241); hands and conventionalized skulls

incised on an earthernware bottle were taken from a mound in central Mississippi (Holmes, 1886, p. 433, Fig. 462); hands with nails, finger creases and eyes in the palm and pictures with skulls and arm bones were found on a funeral vessel from Moundville, Alabama (Moore, 1905, p. 175, Fig. 63, p. 226, Fig. 147); conventionalized hands showing the swastika and human finger design were noted from Moundville (Moore, 1907, p. 346, Fig. 4-5); a hand with nails, creases at the finger joints, eye in palm and wristlet on a copper gorget came from Moundville, Alabama (Moore, 1907, p. 399, Fig. 100-101); a hand with nails indicated with eye in palm were on an engraved stone dish from Carthage, Alabama (Holmes, 1883, p. 278, Pl. LXVI, No. 6); and a hand with world symbol inclosed in a circle in palm and with wristlet was on a pottery bottle found near Nashville, Tennessee (Thruston, 1897, p. 136, Fig. 40).

A shell gorget upon which is a conventionalized eagle design (Pl. 91 D) has sections of the shell cut out for emphasis. The piece shows a part of the head as well as wing feathers, tail, and leg with claw. Another gorget, the spotted eagle, is illustrated in Plate 102 A and will be discussed later.

ENGRAVED CONCH SHELL CONTAINERS

Two examples of the large complete marine shells, upon which many of the more intricate engravings appeared are illustrated on Plate 92. A somewhat similar engraved shell cup has been found at Harrisburg, Arkansas (Holmes, 1883, p. 195, Pl. XXIII) and another at Little Turkey Hill, Independence County, Arkansas (Moore, 1910, p. 356, Fig. 73-74). One shell illustrates the weathering away of the outer wall in the central portion of the shell as well as the fact that the cores of the shells have been cut out, forming bowls. Weathering of this type would seem to indicate that these particular shells had been placed with the open side up and that accumulated moisture in the bowl had hastened deterioration. In nearly all instances a certain amount of disintegration had taken place along the thin margin of the shell and particularly at the smaller end.

Engravings of human figures representing a ceremony or game appear in Plates 93 to 95 inclusive. The engravings from the shells in Plate 92 are shown in Plate 93 and 94 A. In addition to the five illustrated there are three other shells known upon which the same ceremony is depicted. All have been examined. Of the total, five are nearly complete, having only minor weathered areas, and three are fragmentary. This is the only case where several examples of the same motif have been found in the engravings. As there were known to have been eight, the ceremony depicted must have been of considerable importance. It could be ancestral to The Busk, Green Corn or Harvest Ceremony.

The relatively simple dress of these figures might indicate that they were about to engage in some sort of active competition. The motif consists of two figures of men who stand facing each other, with arms outstretched toward a central, tall, slim forked staff. Both figures, in all engravings where the heads have not been weathered away, have in front of the face the pendant bead ornament so typical of Spiro. In all examples except one (which is probably weathered out) the figure on the right wears a short, thick, curved headdress, while each of the figures on the left wears a different headdress. These consist of various ornaments or hairdress, extending from the back of the head down along the back, in some instances almost to the waist, and from the back of the head, outward and upward. All of the figures wear earspools (Pl. 79). All except one (possibly weathered) wear neckplates consisting of a semicircle bisected by a vertical line. Each of the figures shows paint marks. The figure on the right in each instance shows the paint decoration vertically from the eye to the jaw, and a double horizontal line from the vertical line to the ear. The figure on the left in all examples shows a horizontal paint mark extending from the mouth toward the ear, tapering to a rounded point in front of and just below the ear. All of the engravings with the exception of one badly weathered fragment show belts or evidence of belts on the figures. These, with one exception which shows some cross-hatching, are decorated with three pairs of slanting lines. Each belt either ends in or has stuck through it a head, resembling a bird. The two heads on each seem to be alike in type, but vary in size. In one the heads are conventionalized. In another, the head is very much like a bird with long pointed topknot and beak (Pl. 95 A), and in a third the head has a very small squared top. These heads, with variations due to adapting the drawing to the available space and curvature of the shell, are thought to represent the copper bitted, wooden-handled axes (Pl. 54 and 55) worn attached to the belts of the figures. The axes, in turn, probably represent the pileated or crested woodpecker. The woodpecker occupies a prominent place in the ceremonies and symbolism of many tribes in the central portions of the United States according to Willoughby (1932, pp. 57-58).

The knees, wrists and ankles of all the figures with one exception (not illustrated) are decorated with two or three horizontal lines. In those shells where weathering has not had an opportunity to obliterate the area, large three-pronged speech symbols flare upward from the mouths. The figures hold their arms outstretched horizontally toward the staff. In all but one (Pl. 95 A), the figure on the left holds the left arm above the right, with thumbs pointing downward. The figure on the right holds the right arm above the left, thumbs pointing upward and hands extending in front of the staff. From the hand or wrist of each figure, except those on two of the

shells (Pl. 95 A and one not illustrated), tapering appendages are suspended. Such appendages are shown in a number of the engravings from Spiro. They vary in form and probably represent the corn tassel. The staff held by the figures is tall and slender. It has a large fork at the upper end and is squared off at the bottom. In each instance it is decorated with five equidistantly spaced groups of three horizontal lines. One staff, (Pl. 95 A) of which only the central part is still evident, is much broader than the others and is decorated with pendant-like objects which could be variations of the wrist pendants in the other engravings. Since each of the two lower of these is shown suspended from the customary horizontal line decoration on the staff, it is possible that each of the others also was so suspended. The staff may represent the corn plant and the appendages the corn tassel, especially if the Green Corn ceremony is analogous to the rite depicted.

An explanation of these engravings was sought from Miss Alice L. Marriott of the Indian Arts and Crafts Board, Oklahoma City, who made the following suggestions:

"It seems possible that the ceremonial represented might have some connection with the 'busk' or harvest festival that was so widely distributed through the southeastern tribes. An essential part of the busk is a group of men's dances around a central pole. In some tribes the pole is topped with a representational carving of a fish, bird, or animal, while in others it is simply a post set in the ground. Another feature of the busk is a men's ball game, played with racquet-like cleft sticks. For this game, the men strip down to breech-clouts and belts, and play barefoot. The belt and breech-clout belonging to a player are very important, and are kept with his stick, all tied together and most carefully put away between games.

"One feature of all southeastern ceremonials seems to have been the 'black drink,' a fairly violent emetic which was taken before, during, and after the performance of the ritual. It is remotely possible that the 'balloons' issuing from the mouths of the figures represent the effect of this dose. They could just as well represent human speech.

"Some field notes, made on the spot at Creek Busks and Cherokee harvest dances include these points, all Creek, that might tie in with the Spiro engravings. The ball game which precedes the dance proper is oriented around a central pole. The pole is topped either with a carved wooden effigy of a bird or animal--this seems to depend on the town--or with a skull of a cow or a horse. Points are scored by the nearness of hits to the carving or skull. Possibly this

pole has some relation to the 'central tall, slim forked staff' and to the horizontal lines shown on the staff in these engravings. The game always opens with a challenge, given by one of the towns to play, and accepted by the other. This may be connected with the speech symbol, if it is that, emerging from the mouths of the carved figures. The usual play is red (war) towns against white (or peace) towns. There is no way of knowing whether the Spiro people were Creek, of course, but the duality in play and worship seems to have been a widely-spread southeastern custom. The difference in headdress may have some relation to this, or it may not. Paint varies so widely, and is so often omitted at the present day, that I dare not comment on it. The streak from the mouth to eye seems to be fairly common.

"The belts and breech-clouts worn by the Creek in their ball games are most important. Each man has his own, which is made for him by his wife or one of her relatives. The breech-clout is short and narrow, with an all-over decoration of simple geometric applique (very like cross-hatching). The belts are even more interesting, since they represent almost the only survivals of native weaving in the tribe. They are woven in two ways: either they are finger-woven (a complicated braid which produces parallel diagonal stripes), or they are woven with a simple heddle but no frame, producing parallel horizontal stripes. There is a fragment of finger-woven belt in the University of Oklahoma Spiro collection in the simple pattern which produces diagonal stripes. While I do not know certainly that the heddle was used in the pre-conquest southeastern United States, I do know that some of the twined and plaited fabrics produced had much the same appearance as these woven with the simple heddle. I have seen nothing worn that would suggest the head in which the belts on the carvings end, since the belts now in use are generally knotted on the left side, with some tasseled fringe allowed to hang. I have never seen decorations worn on the knees, wrists, or ankles of ball players. During the late eighteenth and early nineteenth centuries, however, Creek costume, as featured by McKenny and Hall, showed use of finger woven anklets, wrist-bands, garters, bandoliers, and belts."

It is possible that the individuals on the next three engravings (Pls. 96-97-98) are officials in the ancestral Busk or Harvest ceremony. Their dress, while somewhat more ornate, is very similar to the contenders in the preceeding engravings. They hold forked staffs which may be corn plants, and the tapering appendages which may be corn tassels are present. A man with antler headdress (Pl. 96) holds a forked staff from the side of which hang two tapering appendages and a sun symbol. Behind this individual is an object, possibly representing a stretcher. It is composed of six crossed poles the covering of which is decorated by concentric circles and half circles that are

quartered by crossed lines. The figures in both Plates 96 and 98 are not depicted as dancers, or in action, as they are shown standing straight and flat-footed.

A buffalo mask or hood with three horn-like projections is worn by a dancer in Plate 97. The eye is surrounded by concentric circles, and from the mouth comes a long two-pronged speech symbol. The neck decoration is a series of V-shaped lines. In the right hand is a crooked staff from between the forks of which hangs what is probably a corn tassel. In the left hand is a tasseled spud-shaped object. A long tassel evidently comes from the back of the neck below the left arm. The belt, which is decorated with crosses, has a tassel on each side. A man wearing a two faced mask (Pl. 98) grasps a forked staff in each hand. These are very much like the forked central staffs of the contenders engaged in the Busk (Pl. 93-94-95), even to the extent that they are decorated at intervals by three parallel lines. The fact that the staffs are curved in this illustration might be accounted for by the fact that they are at the sides and follow the margins of the shell. Each arm has two tapering appendages suspended from it, and a triangular object extending upward. He wears a triangular breast ornament much like that on the figure in Plate 97. Each face has a tapering horizontal paint mark extending back from the mouth, short speech symbols protruding from the mouth, and a long forelock decoration. The belt has tassels on each side and a breech-clout hangs behind.

A man in eagle regalia (Pl. 99 A) wears a beaked mask and a banded topknot quite like that in Plate 124 A. Extending above the head from wing to wing is a lightning design formed by four zigzag lines. The figure wears a wide belt of brickwise banding with a triangular pouch or breech-clout attached. This bag or breech-clout is somewhat similar to that shown on the copper spotted eagle (Pl. 72) and to those worn by the figures on the copper plates from Etowah (Willoughby, 1932, p. 34 & 36, Fig. 14 & 15). Bands marked off in squares, probably representing shell bracelets, are shown on the legs, arms, and neck. A noteworthy fact is that the bands on the knees, unlike those on other figures from the site, are of much larger circumference than the knees themselves. Large detailed feathers make up the wings, and a fan-shaped tail, either side of which is decorated with squared-hatching, is back of the legs.

Another figure in eagle regalia (Pl. 99 B) also wears a beaked mask, and a headdress which comes to a double flat point, somewhat similar to that in Plate 119 A. Long wavy lines extend both right and left from the headdress and in one instance three of these seem to terminate in a tassel. Earspools are worn, and a V-shaped breast

decoration extends from the neck to the belt which is a double band of slanting lines, one above the other. A long, slim, single-pronged speech symbol emanates from the mouth. The wings show a number of large feathers. Short feet and claws extend from immediately below the belt.

The figure in Plate 99 C is similar in many ways to those preceeding it. Weathering has removed details of the face, but some paint marks are indicated, and a speech symbol seems to be present. A short, thick, horned rattlesnake is shown extended above.

A being in eagle regalia (Pl. 100), or more likely a conventionalized conception of an eagle, has legs and claws similar to those illustrated in Plate 115 B. The head has the typical eye design (Pl. 71), and four upright projections which might be a crest of feathers. Feather-like appendages hang from the arms, and a large fan-tail projects from the rear. The figure wears a gorget, and around the neck is a string of large round beads, similar to some found in the site made from the central column of conch shells (Pl. 66). A large conch core pendant (Pl. 83) is suspended from the center of the string. Bands marked in squares decorate the arms, legs, neck and tail. Three oval markings similar to those on several of the serpents are above the figure. The engraving in Plate 101 A seems to represent the eagle itself rather than a dancer with eagle paraphernalia or a conventionalized representation. The long, forked, angular tongue may be a speech symbol. The beak is large and hooked, and contains a large nostril. The entire bird is well executed, particularly the feet and claws. The head has a well defined crest and a three-pronged eye decoration. Eight point world symbols are present on each wing. The feathers on the wing are shown in more detail than in other examples, and short feathers as well as long ones are indicated.

The following engravings (Pls. 101-103) are representations of various birds. The birds in Plate 101 B probably represent turkeys as each has an appendage below the neck, perhaps to indicate the beard of a turkey cock. The series of semi-circular lines with outer lines forming a series of points may represent the sun and its rays. A spotted eagle is depicted on a fragmentary gorget in Plate 102 A. The two black dots toward the center are holes drilled through the shell, no doubt for suspension. The spotted eagle also appears in embossed copper (Pl. 72 and 76).

Plate 102 B illustrates both sides of the same piece of shell. One side shows an eagle leg, claws and a few feathers, the other a scroll design. Its unbroken edge is accurately curved, its engraving nicely done. It is the only example noted of shell being engraved on

both sides. This piece is one of the good examples of the tragedy of Spiro. Beyond these few points nothing can be determined about it, although it may have been one of the site's outstanding gorgets or pendants. On a conventionalized tree complete with individual branches and roots (Pl. 103 A), the difference in shading on the right and left sides may indicate sunlight and shadow. A bird is perched on each of the three principal branches on the left side. The birds have large topknots. It would seem probable that these are cardinals because of the similarity in shape as well as the fact that the mound contained a quantity of woven red feather mantles. A bird in flight is shown in Plate 103 B along with several unidentified objects. This bird is evidently of a different species than those previously shown. From the parts of the engraving not obliterated by weathering, it appears as if a series of turkeys was portrayed in Plate 103 C. The large end of the shell was ornamented with a series of four parallel lines arranged in a scallop design, merging on the left into a snake-like design with chevrons.

A dancer with a two-faced mask (Pl. 104 A), one looking to the right, the other to the left, holds two conventionalized serpents from the mouths of which come tapering appendages quite similar to the tapering arm appendages of Spiro. One of the serpents has a well defined head, the other has not. A second pecularity of this design is that due to the lack of shell space the tapering end portion of the tail of the serpent in the left hand has been added as a separate piece along the side of the lower body of this serpent. It will be noted that one side of the tail of the other serpent follows the conformation of the calf of the leg and parallels this line. While nearly all of the designs engraved upon shell at Spiro have tended to conform to the irregularities of the shell and to be fitted to the space available, this is particularly noticeable here. The paint streaks from each of the eyes of the mask, in making their downward sweep, cross each other, and the axe head (Pl. 55) projecting from the belt has an elongated crest which neatly occupies the available space between the arm and body and one of the grasped serpents. There are two extremely long forelock decorations, and both of the mouths emit single pronged speech symbols. The mask proper is quite similar to that worn by the figure in Plate 98. The belt is wide and has two pointed decorations hanging from its lower margin. Each of these may be composed of a large round bead and a large tapering bead such as are known to have come from the site.

Two dancers, back to back (Pl. 104 B) wear long, entwined rattlesnake mantles. This is one of the most intricate of the engravings. The mantles have different decorations and end in differently constructed rattles. Each figure wears an elaborate headdress

consisting of a five pointed crown (the only known example from Spiro), but ending in the usual bead forelock ornament in front of the face. From the occipital hair knots at the nape of the neck extend two peculiar appendages, probably feathers. Each dancer wears earspools with a forward extension and a wide double paint mark around the face on a level with the eyes. In one hand of each is held a knife or blade. In the opposite hands one holds a conventionalized snake, the other an object which is partially obliterated by weathering. Squared hatching decorates the knees, arms and neck of both, as well as the belt of the figure on the left. The belt of the dancer on the right is decorated with a dotted circle and crosses. The belts seem to end in a tasselled sash at the back. Quite different from the other dancers are the feet which are in moccasins that come well above the ankles and are shown in cross-section. Of special interest is the coiled, horned rattlesnake shown below. The horns resemble those on the snake in Plate 99 C.

The serpent in the right hand of the dancer in Plate 105 has five wing-like projections and shows rattles on the tail. In the left hand the dancer holds what seems to be a second serpent and a spud-shaped object, probably a feather fan, used to distract the attention of the snake. Attached to the fan are two tapering appendages. From his left armpit and elbow hang objects similar to those appending the wrists in Plates 93-94. As no artifacts comparable to the conventionalized serpents were found in the excavations, it is possible that they were wooden figures that had disintegrated. The headdress of this dancer has three extensions from the back, and one from the top, as well as the characteristic Spiro three-piece forelock adornment, consisting of a round, a short conical, and a long tapering shell bead. Beads in these forms, which were no doubt used for this specific purpose, were found. At the belt is the typical axe-head, with bit turned upward, perhaps to allow for the curve of the serpent below. This design is from the largest engraved shell found. The design is also one of the largest. It is 14 1/2 inches wide by 14 5/8 inches high. Plate 106 shows another man holding a conventionalized serpent in each hand. From each arm hang the three usual tapering appendages. He wears a horned headdress from the rear of which extends a raccoon skin. He wears earspools and mace-shaped ear pendants on which are the world symbol. These pendants are somewhat similar to those of copper from Etowah (Willoughby, 1932, pp. 40-42, Fig. 17-18). From his belt, which is decorated with a series of "eyes," hang three tassels. Above his right shoulder is an unattached boot-like design, which may represent part of his hairdress.

The figure in Plate 107 holds a pointed, though crooked staff, or what may be a highly conventionalized serpent figure, from which

hang four tapering appendages. Another such appendage extends from a large tapering object in the foreground (held in the left hand) which may represent a shield. This individual is more simply dressed than some, since there are no tassels or pouches hanging from his belt. The mark across the toes on each foot does not seem to be duplicated elsewhere.

The next series of plates (Pls. 108, 109, and 110) show engravings of snakes. A snake with four separate bodies which connect one head with one set of rattles appears in Plate 108 A. Antlers project from the head. The eye and mouth decorations are somewhat similar to those in Plate 115 B. The bodies show two decorations as does the large rattle. A hole is drilled through the shell at the end of the rattle. A rattlesnake design which has six heads branching from a single body is shown in Plate 108 B. The heads on each end of the body have antlers, ears, nostrils, designs around the eye and teeth, while the four between show only ears, eyes, nostrils and speech symbols, or tongues. A rattle caps the snake's tail. Another serpent is represented with at least four heads branching from one body in Plate 108 C. The back part of the figure has been weathered away. The forward head carries antlers, ears, a design around the eye, a nostril and teeth; the next two heads have ears, undecorated eyes, a nostril and a speech symbol or tongue, but the last has no ears. To the left is a complete, short, broad rattlesnake which is not connected with the first. Four systematically entwined serpents in Plate 109 are shown emitting decorated speech symbols. These snakes have heavy, bird-like, hooked beaks and peaked plumes or crests. The eyes are surrounded by a double-line decoration in the form of a teardrop. The eyes, together with the large beaks which have a cross-hatched decoration, make these figures particularly fierce looking. Three snakes with plumed or horned heads, and with three-pointed eye designs, decorated speech symbols, and well defined fangs are shown in Plate 110. The serpents have highly decorated, and extended wings with wing feathers. At the bottom between the rattles of the two most prominently displayed, the head of a fourth serpent extends. It emits a decorated speech symbol, but the plume and the neck decoration differ from the others. Three death symbols, in the form of conventionalized long bones, are also present.

Four winged serpents with rattlesnake bodies and jaguar heads surround a world symbol in Plate 111. Each serpent has two beads and a large tassel suspended from a band around the neck and has a band around the tail just in front of the rattle. The bodies are decorated on the back by circles enclosing dots and on the ventral surface by a barred oval design. Two opposing serpents have scattered dots on the heads, but the other two are plain.

A snake with plumed head, three pointed eye design and a blunt, squared tail, in Plate 112 A, has its tongue extended as though in the act of hissing. In one curve made by the snake's body is a death's head with speech symbol, and in another lesser curve is a human hand with the world symbol indicated in the palm.

A coiled serpent wearing a two-faced human mask is shown in Plate 112 B. The mask has antlers, two sets of two-pronged speech symbols, and two beaded forelock decorations. Paint marks surround the eyes and V-shaped marks extend horizontally backward from the mouths. The tail of the serpent ends in a heart-like tip, perhaps a conventionalized rattle.

A plumed serpent illustrated in Plate 113 A has rather peculiar decorations, for between the cross-hatching on the body are what appear to be rattle designs. Furthermore, in three instances, between the coils, figures of conventionalized long bones appear such as are shown from Walls, Mississippi (Shetrone, 1930, p. 387, Fig. 24). This serpent was winged, as two feather or fin-like appendages extend from the body.

An engraving which may represent a struggle between a plumed rattlesnake and an eagle is shown in Plate 113 B. A rattlesnake is coiled around what appears to be a bird, for the tail and wing feathers are evident and a head resembling that of a bird is shown below. Here again a world symbol appears.

Below a conglomerate design in Plate 114 A is a separate, antlered serpent, the decoration of which differs from others illustrated. His mouth is widespread. It is impossible to determine whether the tail terminates in a rattle due to the weathering of that part of the figure. The eye has the three pronged extension design. Human heads, a hand with fingernails and eye symbols, tassels, and perhaps long bones can be distinguished in the design above. To the lower right of a plumed rattlesnake in Plate 114 B extends a human left hand upon which nails and finger creases are indicated. On this snake an attempt has evidently been made to indicate the warning motion of the rattle by using a series of extra lines at the sides of the rattle. The eye is surrounded by a three pronged design. Another snake with three pronged eye decoration (See Pl. 115 A) has a plume-like tail. The body has a dual design running longitudinally, which is intended to differentiate and accentuate the difference in the dorsal and ventral surface patterns of the serpent. This use of two parallel designs on the snakes is very prevalent, as is illustrated by Plates 113 B, 114 B, 115 A, and 117 A.

Conventionalized serpents shown grasped by eagle talons attached to legs only are illustrated in Plate 115 B. The serpent eye

decorations are somewhat similar to those shown in Plate 116 A. The talons are very similar to those illustrated in Plates 99 B and 100. Portions of this same design motif appeared upon two additional engraved fragments that were possibly from a single shell.

Three horned serpents in Plate 116 A have pronged speech symbols or tongues. The outer two have strange spectacle-like designs surrounding and connecting the eyes and reaching to the edge of the wide flat heads, but the eyes of the center head are decidedly slanting. Only a very small portion of the bodies remains.

Four swastikas enclosed in a double circle are among the coils of a snake in the serpent and bird design in Plate 116 B. In speaking of designs on copper from Ross County, Ohio, Shetrone says: "Among these are the well known and widely distributed swastika, the emblem of friendship. . ." (Shetrone, 1930, p. 127); Swastikas are reported from Winona, Mississippi (Brown, 1926, p. 206); from Christian County, Kentucky (Webb & Funkhauser, 1929, p. 12, Fig. 15); and from Lafayette County, Arkansas (Moore, 1912, p. 600, Fig. 94). This engraving may be the conventionalized representation of a snake that has swallowed birds. The same idea, a snake that has eaten a bird, is represented in Plate 116 C. Here, the snake is wrapped around a curved tapering piece that is held by a man's hand and arm. A large cuff is on the wrist of the holder and there is some elbow decoration. Concentric triangles are above and below the snake-bird combination.

A complete, coiled serpent shown in Plate 117 A has a mace-like tail, forked tongue and plain head. It has been suggested that the engraving, Plate 117 B, represents the result of a battle between a rattlesnake and a king snake. The king snake has swallowed the rattler and part of its tail protrudes from the king snake's mouth. The king snake was then killed for its deed (its neck is depicted as broken) by the arrows surrounding it. The odd look of the engraving is probably due to the artist's attempt to show a cross-section. The accompanying broken arrows and mace-like figures are similar to those in Plate 129 A. A plume is suggested by three hair-like projections from the back of the serpent's head.

A hood or mask with nostrils, mouth, and four pronged ball-tipped conventionalized antlers, possibly deer antlers, is worn by the dancer shown in Plate 118. He wears a banded, squared-hatched neck decoration, and from his mouth emanates a two pronged speech symbol. Suspended from his neck is a string of round beads alternating with seven conch core pendants, the center one being the largest. From the arms hang the typical tapering appendages, and he carries a bow in his left hand. His belt ends in a tassel.

A dancer illustrated in Plate 119 A has a great deal of paraphernalia. The head shows two projections on top which may be indicative of a hairdress somewhat similar to that in Plate 99 B. Back of the head is an occipital hair knot, now separate. The connecting lines may have been erased by weathering. It is similar to the hair knots shown on the snake-dancers of Plate 104 B. From his mouth projects a hooked, two pronged speech symbol. Two masks or heads rest on his outstretched arms, one facing right, the other left. He wears a wide neck-plate with bear-tooth ornaments. From the belt, which is decorated by tassels, project two objects, one on either side of the waist, from each of which hang two of the usual tapering appendages. Between his legs is seen the lower part of a mantle which ends in two decorated strips.

In Plate 119 B a figure is shown wearing a long, horizontally horned headdress. There is a small tooth-like projection above the left eye. The horns are suggestive of and probably represent buffalo horns. He wears a most elaborate neck plate, the projections of which apparently end in tapering beads or bear tooth ornaments similar to those shown in Plate 66. Over his left shoulder is an object which may be the cord or sash to which his neck plate is tied. In his right hand is a six-pointed, star-shaped object. From it hangs a tapering appendage. In his left hand is an unidentified object. From the right side of his belt protrudes a spud-shaped tool, or perhaps a feather fan, and below it is a tassel. The left side ends in a double tassel. A mantle is suspended from his back and appears between his legs.

A warrior may be displaying two of his victims in Plate 119 C, or this may be the record of the exploits of some individual of the tribe. The warrior wears a headdress not noted elsewhere. The paint decoration tapering from his mouth toward his earspool is like that shown on the left hand figures of Plates 93 and 94. He wears a circular gorget and a squared-hatched neck design. Behind his back is a mace. His right hand holds a bow, and his left seems to point to the two heads. The heads show top headdresses similar to those in Plate 122 A. From the back hangs a plume-like object, probably hair, and the typical bead pendant is in front. The heads have short paint marks extending downward from the eyes as well as one from the mouth similar to the one on the warrior. The warrior and the unweathered head wear earspools and emit speech symbols.

A series of figures carrying masks or heads grasped by the headdress appear in Plate 120 A. The principal figure wears an intricate headdress ending in a long braid down his back. He seems to have the roached foretop of the warrior, though this may be a part

of the headdress. The pendant from the forehead is of the usual type. He has two parallel paint marks from his mouth to his earspool, the lower seeming to follow the jaw line. He wears a gorget and a string of round beads in the center of which is an extremely large conch core pendant. The mask, which projects upward from the hand of another figure (only the hand and wrist of which remains), has many of the characteristics of the principal figure with the exception that the lower part of the pendant in front of the face appears to be a tassel. The lower neck line of the mask is three pronged. This similarity in detail would suggest that the object carried was not the head of an enemy, but a mask portraying something or someone in the tribe of the individual on the right. Perhaps it was in honor of some chieftain or other important personage. A shell gorget from Sumner County, Tennessee depicts a figure holding a mask (Thruston, 1897, p. 352, Fig. 247).

Plate 120 B is one of the few representations of women shown on the material from Spiro. That these heads depict women is, of course, not definite, but the features and headdress are entirely different and do have a decidedly feminine appearance. A conglomeration of other objects appear in the same engraving. It is not surprising that few women are shown, in view of the fact that the rites and events recorded in the engravings are probably religious, or connected with mythology and/or warfare. Women probably played a small part in such ceremonies.

Five heads of warriors yet remain of an engraving (Pl. 121 A) showing a council of war. Two projectile points are prominently displayed upon the large forked speech symbols, which are connected one with the other, and intertwined. All the heads have roached hair, a variation of the beaded forelock, earspools, and the occipital hair roll. Two of the warriors have a headdress similar to that shown in Plate 122 A. A line of paint encircles the mouth of each figure and three have painted variations of the two-pointed eye design. One warrior has an oval paint mark around the eyes and a line running from just below the nose back to the earspools. The fifth has the same band from the upper lip to the earspool but lacks the paint around the eye.

A fragment of a shell has a part of an engraving upon it (See Pl. 121 B) which seems to depict discussion of past war-like exploits. The roached heads of these warriors have beaded forelock ornaments, earspools and loops of either hair or other decoration hanging back of the earspools. Long wavy speech symbols project from the mouths and terminate with projectile points. Interspersed with the heads of the talking warriors are several skull death symbols. In some places

the long wavy speech symbols seem to encompass the death's heads. The paint decoration of each warrior consists of a row of three circles, each enclosing a central dot, extending from the eye straight down to the jaw, and a line completely encircling the mouth. In both engravings, Plates 121 A and B, the projectile points are shown with lines extending across the midportion. These lines may serve to indicate penetration of the intended or past victims. Nine similar heads shown in Plate 122 A are nearly alike except for small variations in the shape of the hair back of the head, and in the speech symbols. Face paint extends in a double, tapered wavy line to the jaw. This engraving, together with that shown in Plate 122 B, probably represents a group of people which may have been either a war party or war victims. The latter design, which has eight heads remaining, differs principally from the first in the manner of paint decoration, which is a double line from the mouth to the earspool, and in the headdress, which is the banded topknot type like that in Plate 99 A.

A small shell fragment has upon it an engraving (Pl. 122 C) showing an arm and a hand holding a head or wooden mask. A somewhat similar scene is depicted on another fragment (Pl. 127 B), except that in the latter example the arm of the principal figure seems to grasp the mask or head by the headdress and so extends the mask aloft in an inverted position.

Attention has been called to the similarity of material from Spiro to that from Etowah in Georgia many times. In no instance is this similarity shown more strikingly than in a comparison of the "Symbols" engraved on shell in Plate 123A, 124 A and B, with the badges or symbols wrought in copper from Etowah (Willoughby, 1932, p. 48, Fig. 21 a, b, c). Parts of three similar heads appearing on a shell fragment are illustrated in Plate 123 A. In the illustration, Plate 123 B, these parts have been put together to form one drawing which is more complete than any of the three original weathered figures. The headdress indicates a warrior with roached hair similar to those embossed on copper in Plate 71. The paint decoration is entirely different from any so far shown. A streak forms a loop extending over the eye, and a band crosses the upper lip extending down diagonally on the side of the face to cross a paint mark coming up from the chin. The symbol in this design projects upward from the back of the head, and below this hangs the hair. In Plate 124 A the symbol projects forward from the headdress. An insufficient portion of the third fragment shown in Plate 124 B remains to indicate the attachment of the symbol. While the three symbols from Spiro differ from each other they have their direct counterparts from Etowah; indeed in one example they are almost identical. Plate 124 C shows this comparison graphically. Symbols from Etowah (Willoughby,

1932, p. 48, Fig. 21, a, b, c) are on the left and those from Spiro are on the right.

A series of antlered masks depicted on the engraving in Plate 125 A is quite similar to the cedar mask with antlers illustrated in Plate 28 A. This is further evidence that the possessions of the Spiro people were perpetuated in their engravings on shell.

A succession of heads portraying thick-necked individuals is shown on Plate 125 B. Alternate heads are reversed. The engraving is simple, yet gives the impression throughout of heaviness, perhaps intended to indicate aged men. There is no headdress except for the forelock decoration. The hair seems to be banded high on the back of the head, the ends hanging straight down. Perforated earspools and short, curved speech symbols are present, and a variation of the weeping eye is painted on the face.

Plate 125 C shows only a fragment of what was evidently one of the large, single figure engravings, since the face and small portion of the shoulders shown measure four inches across. The figure probably wore some sort of a garment, as is indicated by the decorations on his chest and shoulders. He wears a perforated earspool and has five parallel lines extending backward from the back of his head. Only the tapering portion of his forelock adornment remains.

A fragment of a series of highly decorated human heads shown in Plate 125 D is quite different than any previously shown. The front of a face and headdress of one figure and the lower part of a headdress, earspool and jaw of another are shown. All details are very elaborate. Another series of human heads appears in Plate 126 A. With slight variations in detail, these are very similar to those in Plate 122 A.

A portion of a human figure with a quiver on the back and what may be a bow in the hand is shown in Plate 126 B. The figure seems to wear some sort of a mask.

Probably the most roughly made engraving from Spiro is illustrated in Plate 126 C. A mace, world symbol, and human head or mask with some indeterminate designs are shown. These occurred on a complete shell.

Plate 127 A and C illustrate parts of human figures appearing on fragmentary shell pieces. These, while very incomplete, are shown for their unique body paint designs and definite bead and bracelet-like adornment. The anklet in Plate 127 C might be a series

of copper bands. Plate 127 B is discussed with a similar engraving shown in Plate 122 C.

The diggers, at the time their lease expired, were of the firm opinion that there was another mace, the "key mace" as they called it, still to be unearthed. They based this opinion upon the engraving shown in Plate 128 A. They said that all of the other maces depicted on shell engravings eventually showed up (made of stone) in the diggings, a contention which seems in general to be valid. The term "key mace" for this object was due to one of its sides being irregularly notched.

A conventionalized representation of birds and of arrows is illustrated in the drawing of Plate 128 B. The birds wear a two point weeping eye and chipping is indicated on the arrows.

The man represented in the lower center of Plate 129 A presents a unique appearance. The drawing technique is child-like. He is surrounded by arrow-like figures, a mace, and cross-hatched designs. The arrow-like figures represent broken arrows for the points extend back in the same direction as the notched ends and the splintered wood projects from both sides of the break about midway along the shaft, exactly as though a shaft had been bent, partially broken and splintered.

Plate 129 B shows a variety of designs. There is a sock-like object trimmed in cross hatching, a leg with foot similar to those in Plate 129 A, a mace, the tail of a conventionalized snake and several arrow figures. These arrows are conventionalized, and have upon them cross bars, wings and perhaps rosettes. These arrow-like figures bring to mind the decoration on a vessel shown by Moore, about which he says: "The rosette figure represents the sun according to Professor Holmes. . . It would be quite in keeping to represent an arrow with the sun, the arrow representing a ray or dart of the Sungod and the sun representing his shield. . ." (Moore, 1905, p. 190, Fig. 88).

A fragment of an engraving (Pl. 130 A) shows the forward part of one arrow shaft and the back or notched end of another. Part of the arrow point and its attached shaft with either a wrapping or an encircling decoration is illustrated in one portion of the engraving; in another is the notched end and attached feathers.

A number of arrows, maces and human masks are shown on Plate 130 B. Evidently there was a series of the masks of the left. The masks perhaps represented the beads engraved with faces or the

cameos. The mace to the right seems to have a tail and a weeping eye is shown in the lower left corner.

A projectile point decorates the body of a conventionalized bird in Plate 130 C. This is probably one of a series of such figures for the bottom part of a somewhat similar figure is at right angles and to the lower left.

A group of broken arrow representations surround a snake in Plate 131 A. One mace is also in the group. A peculiarity of the decorative pattern on the serpent is the fact that centering over each of the five sharp bends in the snake's body are three concentric circles which give each bend a knee-like appearance. These are similar to the knee decorations, or indications, found on a shell fragment from Spiro (not illustrated but noted in the collection of J. S. Royer) which consists of circles bisected by straight lines and are much like the shoulder decoration in Plate 90 A. Bands of diagonal cross-hatching alternate with these circles.

A human figure surrounded by conventionalized designs, among which arrows and birds are represented, is shown in Plate 131 B. Bird tails surround the whorl end of the shell.

Plate 132 illustrates fish. A fish (Pl. 132 A) is pierced by arrows or spears and both the notched and point ends are shown protruding from it. A scroll of three parallel lines, cut by a circle, decorates the side of the fish and ends in a collar around the neck. A series of fish are shown in both Plate 132 B and C. In Plate 132 C the fish are very plain with fins and a band of decoration just in front of the tail. In Plate 132 B, the most complete fish represented has antlers and a speech symbol protrudes from its mouth.

All of the designs on the complete shells with the exception of two were placed with the top of the figure toward the whorl end of the shell. The design in Plate 132 A is at right angles to the usual placement and the design in Plate 103 A is the reverse of the usual method.

A highly decorated creature probably representing a jaguar, wearing a human mask and with feet or paws with large claws is illustrated in Plate 133 A. A long slender speech symbol protrudes from the mouth and the tail curves above the body. Four sets of three lines each form a braid extending downward beneath the body.

Identical composite animals, possibly representing jaguars, shown in Plate 133 B, are placed with the heads at the four points of a world symbol. The plate upon which the world symbol is shown resembles the object held aloft in the left hand of the human being in

Plate 89 A. Each animal has ears, decorated eyes, nostrils, teeth, a long slim curved tail and a prominent anus. The feet and talons are that of a bird. From the mouths project tongues or speech symbols. Bands of squared-hatching encircle the necks and lower part of the legs. Each body has a single decoration, the barred oval, similar to the spots worn by the serpents.

The head and forelegs of an animal, perhaps a wolf, appear in a design in Plate 134 A. The wavy line from the head down the back and the short lines on the body probably indicate fur or hair. The eye, which is surrounded by circles, has a four point decoration. Concentric circles are present on the body. From the open mouth, which shows teeth, emanates an object decorated by groups of horizontal lines which could be a speech symbol except that it seems to be supported by the right foreleg. Another shell fragment, not illustrated, shows the body and hind legs of an animal with the same decoration.

A small animal, presumably a raccoon (Pl. 134 B), is perched on what may be the conventionalized branch of a tree such as is shown in Plate 103 A. Raccoons seemed to be held in high esteem by the Spiro people as they are present in several engravings (See Pls. 89 B, 90 B, and 106).

As the preparation of this report proceeded and a familiarity with similar material from elsewhere was obtained, it was expected that representations of spiders would be found. It was not until recently, when the engraving from the shell showing two spiders illustrated in Plate 135 was secured that it was realized that for many years we have had the two fragments shown in Plates 134 C and D, showing parts of spiders, and had not recognized them as such. The spiders are drawn comparatively true to nature. The body or thorax is represented by a circle enclosing a world symbol. The abdomen is somewhat heart-shaped (very much so in Pl. 134 C and D) and decorated with lines and dots. This decoration, while varying on the different engravings from Spiro, is fundamentally similar, but differs materially from any shown by Holmes from the Mississippi valley. (Holmes, 1893, Pl. LXI). The legs are placed in four pairs on the thorax and are drawn somewhat angularly. The heads are attached to a banded neck. There are but two eyes, which are indicated by circles centered with a dot. The heads have mandibles which grasp a rectangular object that is decorated with diagonal lines. This object could represent the palpi, but if it does, it is much more conventionalized than the remainder of the spider. The legs of the spiders in Plate 135 are decorated with a mushroom-like object, the fringed cap being placed on the leg, with the stem curving in line with the direction of the leg. Two of these objects extend outward from the thorax

in the fragment illustrated in Plate 134 D. Above the two spiders in Plate 135 are numerous barred ovals and below is a line of brick-wise banding. The fragment shown in Plate 134 C shows only the abdomen with a small portion of the thorax, but to its left is a part of a conventionalized eagle claw.

Various geometric decorations appear in Plates 136 A and B and 137 A and B. The semicircular decoration at the top, Plate 136 A, partially encircles the whorl end of the shell and the bottom line is the same as the upper line of the drawing below. The latter design encircles the main body of the shell. Sixteen petal-like figures surround the world symbol in Plate 138 A. A second shell fragment bore the same design except that the outer margins of the petals were rounded instead of carrying spines. Various sun symbol designs are shown in Plate 138 B.

The hands with eye in palm (Pls. 138 C and D) are discussed with the hand gorget in Plate 91 C.

Several long bones illustrated in Plate 138 E were engraved upon a fragment of shell. As the fragment bore nothing else it may be assumed that the entire shell was covered with a succession of such decorations. Long bones are shown in the engravings illustrated in Plates 110, 113 A, and 114 A.

The two illustrations in Plate 139 are both carved in relief. Plate 139 A shows parts of four human heads. They with others encircled the large end of the shell. On Plate 139 B, is a series of human heads with ornate headdress. It is the most finished and most "professionally" made that came from the site. A high polish is present, even in the depressions. The only other examples of bas-relief technique are shown in Plates 84, 85, 86, and 91 B.

Plates 140 through 151 are discussed in Dr. Willoughby's report on Textiles.

Face Painting Among The Spiro People

As the section on face painting was written before the Spiro material in the University of Arkansas Museum was added to this report, there is no reference whatever, in this section, to that particular body of material.

Thirteen distinctly different paint decorations on the human face are shown in the designs on shell and copper from Spiro. The most prevalent decoration is the double horizontal paint mark ex-

tending back from the mouth and tapering to a rounded point in front of and just below the ear. This appears on each of the figures to the left, on the five shells that still retain that portion of the engraving unweathered, which illustrate the ceremony or game that may be in conjunction with the prototype of the "busk" or harvest festival shown in Plates 93, 94 and 95. It also appears on four other human figures and masks in Plates 88 D, 119 A, 119 C, and 125 C. Another paint decoration, vertically from the eye to the jaw, and a double horizontal line from the vertical line to the ear, appears on each of the figures to the right who are engaged in the Harvest Festival game in Plates 93, 94, and 95. This decoration does not appear on any other figures.

A short broad single mark drops downward from the eyes of the double-faced dancer in Plate 104 A. Variations of this occur on the antler masks in Plate 124 A, where a curved double streak drops from the eyes. Another variation occurs on the series of heads or masks in Plate 122 A, which have a long slightly waved tapering double mark.

A single line, which is quite narrow, runs straight from each eye to the jaw of the male faces on the camoes, in Plate 85.

The double-pointed eye design or weeping eye is worn as a paint decoration by the warrior embossed on copper illustrated in Plate 71. Variations of the double-pointed eye design appear in five places on shell in Plates 86, 91 B, 100, 125 B, and 139 B. In these examples one point is short and blunt, the other is long and tapering, and in some instances it is wavy.

A double paint mark, on a level with the eyes, extends horizontally around the heads of the snake dancers in Plate 104 B. Almost the same adornment appears on a warrior embossed on copper in Plate 71.

Three parallel lines of paint run from the mouth back to the ear of a man who holds a vessel in Plate 89 A, and nearly the same decoration is on a series of faces or masks shown in Plate 122 B.

Two broad parallel streaks of paint adorn the face of a warrior in Plate 120 A. The upper mark runs directly from the mouth to the earspool, the lower starts at the chin and follows the jaw line, then curves upward to the earspool. An identical decoration is on the mask which accompanies this figure.

On four masks or faces that are carved in relief (See Pl. 139 A), a single broad paint mark extends from the nose straight back on each side of the face and under the ear.

A streak of paint forms a loop over the eye of a warrior in Plate 123 A. This, though fragmentary, evidently constitutes a part of the two-pronged eye design. Parts of what are evidently two similar heads are also present on this shell fragment, and one would indicate that a painted band crossed the upper lip and extended across the cheek horizontally, and that another paint mark was on the upper lip just below the first and extended diagonally down across the side of the face to cross another mark coming diagonally up from the chin.

Three bands of paint, one of which is partially superimposed upon another, cross the bridge of the nose of the figure in Plate 125 D. In addition, one band crosses the upper lip and another the chin of the fragmentary figure.

No attempt will be made to interpret the face painting represented on Spiro artifacts. There is no doubt that the different paint designs had much significance to the Spiro people. A thorough study of these designs in association with the dress and actions of the figures upon which they occur might well give a greater insight into the ceremonies and events recorded by these early Indians. This is only one of the many aspects of this material which it is believed to have been made possible through the compilation of the material coming from the Spiro Mound.

CONCLUSIONS

The purpose of the report has been to gather and present the basic information necessary before conclusions concerning the Spiro Mound can be drawn. Tentative interpretations have been made from time to time throughout the body of the report, and numerous references have been made to similar artifacts found elsewhere. This was a natural development stemming from an interest in the material and its counterparts rather than a concerted attempt to interpret and explain it. Lack of time to keep up with the rapidly growing knowledge of the archaeology of the Eastern United States and lack of familiarity with recent archaeological theory has prevented any attempt to draw extensive conclusions concerning the Spiro Mound and its builders. It was thought that there were many others more qualified to make a fuller interpretation of the site and to answer the many questions raised as soon as the information was made available. A section on the interpretation of Spiro in relation to southeastern United States archaeology by James B. Griffin follows.

It was impossible not to speculate about and draw some conclusions concerning the Spiro site and its people when in the process of compiling the information on the construction of the mound and its

contents. A few conclusions were arrived at concerning the age of the site and its cultural affiliation or relationship to other areas. Other aspects speculated upon, more than concluded are trade and commerce, mythology and ceremonial life. These conclusions and speculations are, of course, tentative, but it is hoped that they may stimulate further investigation and interpretation along similar or other lines.

The people who built the Spiro Mound certainly had no contact with Europeans, for no trade artifacts of European manufacture were found. It is also improbable that the mound was built in the protohistoric period preceding actual contact with the first white explorers in the area. The catlinite pipes found in the site which might suggest a time just prior to white contact, are believed to have been intrusive. Neither was found in the central chamber of the "Temple Mound " and both were located in places suspect of intrusion. It is probable that later tribes passing through the area buried the catlinite pipes with some of their dead in the ready-made eminences of the mounds. The remarkable preservation of much of the wood, textiles, and other perishable objects does not necessarily indicate that a short time had elapsed between the deposition of such material and the opening of the mound. Most of these articles were preserved through contact with copper objects. Examples of the preservation of similar objects known to be hundreds and even more than a thousand years old and preserved through contact with copper have been found in Hopewell mounds in Ohio and Illinois. Furthermore, the construction of the "Temple Mound" apparently was such that little moisture penetrated the inner chamber where the greater part of the perishable materials were obtained. Available evidence suggests, then, that the mound structure was built prior to 1600 A.D. and possibly several hundred years earlier.

The cultural position of the Spiro Mound will be left for the professional archaeologist to decide, but it seems obvious that the cultural affiliation is primarily with sites in the southeastern United States. The most marked and consistent resemblance in cultural remains is to that of the Etowah site in Georgia. The representations of jaguars, plumed or feathered serpents, and the use of speech symbols on the shell engravings may indicate at least some contact to the south, in Mexico.

The types of material used for the manufacture of objects found in the Spiro Mound suggest that the Spiro people had wide contacts either by expedition or trade. The copper may have come from the Great Lakes region or possibly from Mexico. In either instance the distance to the original source of the ore was great. The conch shells used as bowls and upon which the engravings occurred must have come from the Gulf of Mexico or the Atlantic coast. The bauxite

probably came from Arkansas. In general, trade was toward the east, with perhaps some to the north and south. Nothing indicates a western trade or influence. The large amounts of objects obtained through trade denotes that trading flourished.

Exotic items other than trade goods require some explanation. The catlinite pipes have already been mentioned. The large lanceolate and side-notched projectile points or blades, effigy stone bowls, and the bannerstones, plummets and boatstones seem to be out of context. These appear to be types usually associated with earlier type cultures, and thus cannot be accounted for through trade. It is suggested that these may have been picked up on earlier sites and because of their unusually fine workmanship were used ceremonially by the Spiro people. The use of the bannerstone as a pendant in the center of a string of beads perhaps illustrates the use of an object made by earlier people and collected by and employed differently by the Spiro people. It is of course possible that some of the objects presumed to be earlier were heirlooms that passed from generation to generation through hundreds of years and finally became offerings in the Spiro "tomb." Perhaps the stone bowls and the plummets are native Spiro handicrafts, since the sculpturing occurring upon them is similar to that on other native made artifacts. The numbers of these supposed early implements were relatively small, which is another point that may be indicative of a different origin than manufacture by the Spiro people.

The mythology of the Spiro people appears to be well represented in both sculpture and engraving. One series of sculptured pipes seems to suggest an origin myth in which a half eagle, half man race was the progeny of the union of an eagle and a woman. All of these may have been mythological characters from which it was thought the Spiro people were originally derived. The eagle, the rattlesnake, the owl and perhaps the pileated woodpecker and raccoon must have figured prominently in myth and legend. The plumed, horned and antlered rattlesnakes may have depicted mythological characters or deities. As has been indicated, the eagle may have been associated with origin myths, and it is suggested that serpents may have been associated with rain or perhaps warfare. It is believed that a thorough study of the Spiro sculptures and engravings along with a review of the existing knowledge of the mythology of the Indians of Mexico and the southeastern United States, would give a fair insight into the belief and legend of the Spiro people.

Ceremonial life and religious beliefs are no doubt depicted in much of the Spiro material. Representations of the sun, composite animals, composite animal-human beings, world symbols and weeping

eyes may be symbolic of religious-mythological beliefs. Ceremonies perhaps to propitiate mythological deities and assure fertility of crops, rainfall and the good of the people are doubtless perpetuated in the shell engravings. A number of these seem to indicate a ceremony similar to the Busk, Harvest Festival or Green Corn Ceremony of the historic southeastern United States tribes. It is postulated that a ceremony similar to and probably ancestral to the Busk is depicted on the Spiro engraved shells.

The uses of many of the artifact types found in the mound are depicted in engraving, bas-relief and sculpture. Furthermore, ceremonial dress and face-painting designs are shown. Much probably can be learned concerning everyday life as well as the ceremonial life of the Spiro people through a thorough study of these. The compilation of much of the information on face painting was begun in order to indicate the possibilities of other such studies. It is hoped that this compilation as well as other speculations will stimulate more extensive studies that will result in a fuller understanding of the life of the builders of the mound.

The unusually large amount of and the extremely fine workmanship of the artifacts found in the central chamber of the "Temple Mound" along with the small number of burials in the chamber suggests that the mound was erected to honor some great man. He was perhaps a political-religious leader of a great confederacy that extended up the Arkansas River and centered in northeastern Oklahoma at the time. There seems to be no doubt that the Spiro people were numerous and well organized both politically and religiously.

It is unfortunate that the fuller story that might have been recovered through scientific investigation was destroyed through ignorance and the commercialization of the unique historical resources of Spiro. It is a tragedy comparable to the burning of the Aztec Codices. However, much yet remains to be resurrected from the bits and pieces of the exploited Spiro Mound which have been brought together here. If this compilation serves as the basis for even one interpretation revealing more about the life of the Spiro people, the time, effort and expense involved in its compilation will be fully rewarded.*

*Editor's Note: Mr. Henry W. Hamilton, a banker and farmer, Marshall, Missouri, took upon himself the compilation of the information from the Spiro Mound sixteen years ago. At that time Mr. Hamilton, an amateur archaeologist and Vice-President of the Missouri Archaeological Society, learned that professional archaeologists were doing little or nothing about salvaging information concerning the remarkable finds made in the mound. It was obvious that the mound and its contents were one of the most remarkable archaeological discoveries

INVENTORY OF MANUFACTURED OBJECTS THAT CAME FROM THE SITE

The following inventory of objects found in the site is based upon the best information available, combined with our own observations. In all instances where the figure given is an actual count it is starred, although the number counted may not have been the total. The other figures are believed to be a conservative estimate and may be safely considered as a minimum. Indeed it is quite possible, particularly in reference to the more usual types of objects, that the figure given represents only a fraction of such pieces, for many estimates made by persons connected with the site were much larger than the number that has been indicated.

ARTIFACTS	NUMBER
Effigy pipes	23*
Long double-stemmed "T" pipes, plain	15
Long double-stemmed "T" pipes, inlaid	1*
Double bowled "T" pipes	6
Other pipes	80
Stone effigies (not pipes)	4*
Cedar effigies	7*
Cedar masks	42
Effigy stone bowls	3
Pottery vessels	16
Chipped stone maces	15*
Large stone blades (both plain and notched)	35
Spuds (ground and polished)	19
Hoes and diggers, rough	50
Celts	20

Editor's Note (continued):
that had ever been made in North America. He therefore set about recovering as much as possible of the story of the commercial dig. A tremendous amount of time, effort and money has gone into the gathering of the information for this report. The gathering of the material by an individual with no thought of private gain, but purely to advance the knowledge of the prehistory of North America is in many respects as remarkable as the story of Spiro. It is one of the outstanding examples of the excellent work that can be done by amateur archaeologists.

Axes (copper heads, wooden handles)	30
Monolithic stone axes (whole)	4*
Stone axe heads (all types, mostly rough)	40
Plummets	18*
Stone pendants	5*
Worked galena balls	500 pounds
Unworked galena	1,000 pounds
Small projectile points	5,000
Discoidals	16
Boatstones	20
Large tray-like baskets	2*
Matting and basketry fragments	28
Large textile pieces	9*
Small textile fragments	140
Pearl beads (measured by diggers)	2 gallons
Shell beads (weighed by diggers)	1,200 pounds
Stone beads	1 gallon
Cedar wood beads, copper covered	1 quart
Copper beads	1 quart
Bannerstones	6
Long copper needles	150
Embossed sheet copper pieces	70
Blade-like objects of cedar, copper covered	62*
"Copper-covered baskets"	18
Stone earspools	400
Cedar earspools	20
Bone artifacts	18
Conch core pendants (columella)	500
Shell "fishhooks"	12
Engraved shell gorgets and pendants	27*

Engraved shell cameos	4*
Engraved shells, complete or practically so	86*
Engraved shells, badly weathered or fragmentary	94*
Shell carved in bas-relief	9*

Included in the inventory are the following objects of rock crystal or quartz; all of which were actually observed:

Small projectile points	4
Effigies	3
Plummets	1
Beads	8
Boatstones	1
Bannerstones, unfinished	1

An Interpretation of the Place of Spiro in Southeastern Archaeology *

by

James B. Griffin

One of the unfortunate facets of archaeological work is the fact that here and there in various collections there are examples presumed to be of Indian handiwork which have been manufactured during the present generation. There are a number of such items which have been attributed to Spiro which are probably not the work of the prehistoric Indians who inhabited this site. To further complicate the picture it is known that prehistoric Indian trade did move specimens typical of one area to another where they usually appear in sites contemporary with the cultural group in which they were produced. One should also not lose sight of the fact that when the profit motive rears its head that frauds and fakes appear on the market, or that some specimens, genuine in themselves, are said to be from Spiro in order to obtain a better sale or barter value. It is recognized that determining the genuineness of such materials is in most cases a subjective matter. Any judgements of the specimens attributed to Spiro as to whether they are actually from the site or not are, of course, individual. Any doubts, therefore, which are expressed in this particular section should mean that attempts should be made for a more accurate identification of the materials.

*This chapter was designed to comment on current concepts in regard to the chronological placement of Spiro based primarily on the objects illustrated by Henry W. Hamilton. It is not an interpretation of Spiro culture. It was finished in December, 1949, and has only been modified by some recently published references. Some word changes were made in March, 1950, after Alex Krieger had commented on my observations.

In the publication by Burnett[1], there are a number of specimens upon which it might be desirable to comment. The first of these is a steatite bird effigy pipe.[2] As was recognized by Burnett, this pipe both in material and general style is more at home in the Tennessee and Kentucky area and because of the recent work of Webb and his associates in the Tennessee valley, it has been rather clearly identified with what is known as the Copena culture. Pipes of this style are generally regarded as being somewhat earlier in time than the level on which the Spiro occupation and its associated spectacular materials seems to have occurred. If this type of pipe which has its native locale, so to speak, in the Kentucky, Tennessee area belongs to this general time period, one would have expected it to be found in some of the major sites in that area with other cultural traits of what has come to be known as the Southern Cult. So that while this particular pipe may well be a genuine Indian piece, one can reasonably doubt that it was found at the Spiro site.

One of the outstanding features of the Spiro site is the number of excellent monolithic axes which there is every reason to believe were actually obtained at the site. One of the axes in the Heye Museum collection does not resemble a normal southeastern monolithic ax as much as it does the hammer associated with the hammer and sickle. In Burnett's description of this piece[3], he states, "There is definite question as to the authenticity of this piece." It is also pointed out that the material of this ax and its workmanship differs from the more highly regarded specimens and that this same material and type of workmanship is to be found on a number of stone chisels and two ear spools. Another specimen which Burnett quite rightly, I believe, regarded with suspicion is a stone bowl with a human head. One of the comments in regard to this is, "This specimen is reputed to have come from the Spiro Mound."[4] The last example on which I should like to put the finger of suspicion, on a typological basis, is a 3/4 oblique grooved ax which seems to be somewhat anachronous at Spiro but also may be a genuine carry-over of the trait from an earlier time period.

The above comments are designed to lead into statements regarding some of the materials included in the specimens photographed by the Hamiltons. The composite human eagle effigy pipe illustrated on Plate 6 makes me quite unhappy. I do not believe that it is a product of the Indians who inhabited Spiro or any other prehistoric Indian site for that matter. The catlinite pipe on Plate 22 B is a form that is

[1]Burnett, 1945
[2]Burnett, 1945, page 12, Pl. 6
[3]Burnett, 1945, page 19, Pl. 21.
[4]Burnett, 1945, page 20

usually regarded as of very late origin and it is doubtful that it belongs to the Spiro occupation. An examination of West's illustrations of American Indian pipes will bring out the stylistic affinities of this pipe with those from the Northern Mississippi and Missouri Vally.[5] Another pipe apparently of catlinite is a disk pipe, sometimes referred to as the Siouan type, illustrated in Plate 22 A. This form is particularly common in the Northern Mississippi valley area and is often associated with the late prehistoric and even historic cultures of that area. This particular pipe, said to be from Spiro, is then certainly out of its geographic area and if a genuine Spiro find would have considerable value both in connecting the Spiro culture chronologically to northern prehistoric divisions as well as indicating extensive trade. It should be borne in mind that other pipes of this general type have been found sporadically in the Southeast in comparable cultural units and at sites which belong within the Southern Cult.[6] One of these is from Nacoochee in northeastern Georgia.[7] It is of catlinite and was with a burial which was 2 feet 9 inches below the surface of the flat topped mound. In definite association were blue glass beads. Another catlinite disc pipe has been found at Moundville, Alabama, and is now on exhibit in the Mound State Monument Museum. The exact association of this pipe to the Moundville complex is not known to the writer. Disc pipes are not included in Orr's listing of Early, Middle or Late Spiro and it is possible that this pipe while from the "Spiro site" may belong in time to the Fort Coffee Focus.[8]

The platform pipe illustrated in 22 C I regard as distinctly unusual for the Spiro site although on the basis of form and workmanship the pipe is satisfactory. Its closest typological relative seems to be from the Weise Mound in Porter County, Indiana.[9] This is a Hopewell site probably belonging to what has been called the Goodall Focus.[10] Until more definite evidence is presented in the shape of additional finds of such pipes in Spiro culture sites, it is best not to include this pipe as a Spiro trait.

The human effigy pipe of mother and child which is illustrated on Plate 7, I personally view with a jaundiced eye even though it is said to have been one of the first pipes to have come from the site.

Of particular interest in affixing the cultural and chronological position of Spiro is the broken effigy pipe of Plate 17 D. This is said

[5]West, 1934
[6]Waring and Holder, 1945
[7]Heye, Hodge and Pepper, 1918, Pl. XLIXa
[8]Orr, 1946
[9]McAllister, 1932, page 50
[10]Quimby, 1941

to be of rock crystal. It may well have represented one of the serpent-cat composite figures so common in Mississippi culture art forms. This pipe is reminiscent of some of the Selsertown, Mississippi pipes that are now in the Milwaukee Public Museum.[11] Other pipes from Selsertown (now called Emerald) are suggestive of Moundville, which, of course, has many similarities to Spiro . Another pipe also suggestive of Selsertown in illustrated in Plate 17 A and this is said to be of limestone.

The two human figures holding biconcial pipes (Plate 13) are quite important from the standpoint of understanding Spiro affiliations. This general type is clearly associated with Middle Mississippi sites or in the case of the Gahagan site in central Louisiana with Coles Creek and the Gibson Aspect. The Spiro site is clearly on the western margin of the distribution of this pipe type as well as the one illustrated in Plate 17 D. Some of the other pipes illustrated in this volume such as the clay elbow pipes on Plate 17 C and the frog pipes of Plate 18 B are usually regarded as forms associated with Middle Mississippi cultures to the east of Spiro. There is no particular reason to regard Spiro as the point of origin for these types.

The incised pipe, Plate 21 A, is interesting because of its design. This pipe and another are better illustrated in the Heye Museum publication,[12] where the drawings of the design are decidedly suggestive of Weeden Island ceramic styles along the Florida Gulf Coast. The design on the elbow pipe is particularly close to a vessel attributed by Orr to the Early Spiro component, presumably, because of the design on the bowl.[13]

On Plate 30 A there are two cedar dog heads which have an interesting resemblance to shell specimens from the Huasteca of northeastern Mexico.[14] Another effigy of cedar is the duck head on Plate 29 A which is very close to the form found on many effigy bowls in Middle Mississippi sites to the east. In the St. Francis area particularly, of northeastern Arkansas, one of the common decorative tricks on the pottery is the "tail-riding effigy bowl."[15]

The two stone bowls with effigy heads on Plate 31 are also very close to Middle Mississippi pottery types. The lines on the rim of the bowl on Plate 31 top are identical to the type Mound Place Incised of the Lower Mississippi Alluvial Valley.[16] Very few pottery

[11]West, 1934, Pl. 91
[12]Burnett, 1945, Plate V.
[13]Orr, 1946, Fig. 32 d.
[14]Meade, 1942, page 152.
[15]Phillips, Ford and Griffin, 1951, pp. 168-69.
[16]Phillips, Ford and Griffin, 1952, page 147.

vessels attributed to Spiro have appeared in private collections and almost no sherd material. The vessel in Plate 32 A, lower right, is very close to one illustrated by Orr and attributed to the middle level at Spiro and would probably be Spiro Fine Engraved. The vessels on Plate 32 A upper and lower left are of the same quality. One of the vessels from the East Mound, Clark County, Arkansas[17] is very close to the engraved bowl on Plate 32 A, lower right. This East Mound is regarded by Krieger as part of his Haley Focus which he equates with both the Troyville and Coles Creek zones in the Lower Mississippi Valley. In my opinion, most of the East Mound ceramics belong in the Plaquemine period which follows Coles Creek and this would help explain why engraving as a technique does not appear in Coles Creek sites but first arrives in the lower valley in the Plaquemine period.[17a] The shell or gourd effigy vessel in Plate 32, upper right, has shell tempering and is similar to specimens from the Sawmill Mound at Cahokia.[18] It is not uncommon in other Middle Mississippi units. Unfortunately the vessel which carries the design illustrated in Plate 33 is not illustrated but from the description provided by the Hamiltons it is clear that this vessel is very close to Moundville Filmed Engraved or to Walls Engraved.[19] I am not certain that this vessel is actually from Spiro since no reference to other finds of this type in any Spiro excavation has ever been made.

The Heye Museum publication also illustrates very few pottery vessels. One of these is a tripod leg vessel which is found sporadically in the Caddoan foci[20] and in Middle Mississippi.[21] The other vessel illustrated is a small bottle with a cylindrical neck which is at home in the Caddo area as well as in Chihuahua.[22]

The flint maces illustrated in this volume (Plates 34-44), as well as the four specimens in the Heye publication are very close to those from western Tennessee of the Duck River Focus.[23] The same relationship is indicated by the very long flint blades (Plates 45 and 46). These exuberant flint specimens are seemingly more "at home" in the Duck River area and current opinion is that local materials in that area produced at least some of the specimens found at sites such as Etowah.[24] The famous Duck River cache, which was in the Mis-

[17]Newell and Krieger, 1949, Fig. 63 C.

[17a]This view coincides with that of James A. Ford. See Ford, 1951, pp. 124-129.

[18]Moorehead, 1928, Pl. XVII, No. 6 and Plate XXIX.

[19]Phillips, Ford and Griffin, no date.

[20]Krieger, 1946, Pl. 29a, is an example at the Sanders site in Texas.

[21]Burnett, 1945, Pl. LXXXVII.

[22]Sayles, 1936, Fig. 15.

[23]Kneberg, no date.

[24]Moorehead, 1932, pp. 69-70, 99-100.

souri Historical Society in St. Louis for years, is now in the Department of Anthropology at the University of Tennessee. Similar long flint blades have appeared in eastern Tennessee, in the Dallas and Mouse Creek foci and a somewhat comparable long flint blade has appeared in a Fort Ancient site.[25] Most of these and similar specimens have a high degree of distinctiveness and indicate a close cultural connection.

The multiple notched large leaf shaped blade illustrated in Plate 45 is unusual. It has analogies in Mexican and Hopewell forms.[26] I am not at all certain that it is a true Spiro age piece.

The polished long handled stone spuds in Plate 50 are commonly found in sites where other artifacts indicate a connection to the Middle Mississippi Southern Cult. Similar specimens were found during the University of Oklahoma excavations.[27] By Orr, these are attributed to the second cultural stage at the Spiro site (Middle Spiro) which witnesses the full efflorescence of the ceremonial activity. The precise data supporting this time difference and cultural grouping has not been presented and the degree of time difference, be it five days, months, years or decades, is not known. In any event, Spiro is again on the western margin of the distribution of this trait, as in so many others, and it is highly unlikely that it originated here. The long handled stone spud is found at Gahagan which Krieger regards as a site which has nothing to do with the Southern Cult,[28] while I regard it as one of the sites most clearly indicating early cult forms and to be pretty close in time to Spiro. It was also found at the Sanders site[29] which Krieger has placed two stages after Gahagan.[30] The material of which it is made is identified as steatite on the plate description and as serpentine in the text. Mt. Royal[31] another site with this spud is in northeastern Florida, and as well as Gahagan has very little if any connection with the Hopewell culture as Krieger persists in believing. The initial error in confusing Hopewell and Mississippi level sites in Florida was made by Greenman.[32] Webb

[25] Griffin, 1943, Pl. XLV, Fig. 1.

[26] Moorehead, 1922, Pl. LXXVI, Fig. 1.

[27] Orr, 1946, Pl. XXIXC.

[28] Newell and Krieger, 1949, p. 199. Compare Krieger's interpretation of this site with Griffin, 1946, pp. 88-89, which Krieger read in manuscript in 1943.

[29] Krieger, 1946, Pl. 21, Fig. h.

[30] Newell and Krieger, 1949, page 224.

[31] Moore, 1894, Fig. 11.

[32] Greenman, 1938--This author included Shields Mounds, Grant Mound and Mount Royal as Hopewellian sites. It is specifically these sites which are related to Spiro, Gahagan and Middle Mississippi. They are definitely post-Hopewell and have little in common with that culture.

and Dodd subsequently in their excavation of Gahagan tended to regard certain Florida specimens similar to Gahagan as "Florida Hopewell" on the basis of Greenman's misidentification.[33] Krieger has continued this in spite of published evidence to the contrary. The spud has never been found as a part of a Hopewell culture at any site. It is a clear time marker for the post-Hopewell Mississippi levels. The sites where this implement has been found in Tennessee are all in the Cumberland and related divisions. It has been found at the Matthews site of the New Madrid Focus in southeast Missouri;[34] Cumberland County, Kentucky and vicinity;[35] at the Rudder site (Ja°180) northern Alabama;[36] the Shields Mound, Duval County, Florida;[37] Old Town, Tennessee, a typical Cumberland site;[38] Muscogee County, Georgia. north of Columbus;[39] Prairie County, Arkansas;[40] Brentwood, a stone grave Cumberland site near Nashville;[41] and at the Wilkerson site, Davidson County, Tennessee, north of Nashville.[42] An as yet unpublished occurrence of the long-handled spud is at Macon Plateau in Central Georgia where it was found with a burial associated with the early Mississippi pottery complex at Macon.[43] This is striking confirmation of the theory which would place this type of implement as a part of an early to classic Mississippi ceremonial complex. A modified form has come from Aztalan.[44]

Another highly distinctive trait which was found at Gahagan is of considerable importance in cross-dating both Gahagan and Spiro. This is the copper long nosed god mask.[45] As has been recognized very similar specimens were obtained from the Grant Mound on the northern St. Johns River in Florida.[46] It is my contention that the copper materials and other Gahagan-Spiro like artifacts at Mt. Royal and the Grant Mound in Florida are on the same time level since the artifact resemblances are very close indeed. It is somewhat less well known that there are small copper long nosed god masks from

[33]Webb and Dodd, 1939.
[34]Walker and Adams, 1946, Pl. XIII B.
[35]Young, 1910, pp. 204-205; Moorehead, 1910, Fig. 376.
[36]Courtesy of Mr. David A DeJarnette, Alabama Museum of Natural History.
[37]Moore, 1896, Fig. 12.
[38]Jones, J., 1876, page 87.
[39]Brannon, (ed) 1922, page 40.
[40]Fowke, 1896, Fig. 111.
[41]Thruston, 1890, page 295.
[42]Thruston, 1890, page 295 and Pl. XV.
[43]Personal Communication Charles H. Fairbanks.
[44]Barrett, 1933, Pl. 56, No. 3.
[45]Webb and Dodd, 1939, page 107 and Plate 29.
[46]Moore, 1896, Fig. 5.

Aztalan on exhibit in the Milwaukee Public Museum. Only the face portion is preserved on these specimens. The only other possible occurrence of the long nosed god copper masks is from the St. Louis Group of Cahokia. The large oval mound, to the north of an enclosure of smaller mounds, which was destroyed in 1869 produced a series of traits which are of particular interest.[47] The fullest report on this mound describes a central burial chamber 8 to 12 feet wide, 8 to 10 feet high and some 75 feet long. It is reported to have had sloping clay walls plastered with yellow clay and a timbered roof which had collapsed. The burials, numbering 20 to 30 were extended and were accompanied by great quantities of beads and marine shells. At the northern end of the mound and three feet below the surface were two burials accompanied by the columellae of ocean shells, "ivory" beads and ear spools, two "curious articles of copper," about 3 inches long, an inch and a half wide, shaped like a flatiron and while badly corroded they still bore traces of engraved decoration. "From the center of the finished upper side an arm projected at right angles, about 5/8 inch in continuous width and 2/8 inch in thickness at its juncture, which tapered to a thin edge." This description is probably of another pair of long nosed god copper figures. Unfortunately, these specimens have not been preserved, nor is the record at all clear as to the connection of these mounds to the Cahokia groups across the Mississippi. It is assumed that the St. Louis group was, by and large, a part of the great Mississippi culture center at Cahokia.

Another highly specific trait which has already been mentioned a number of times in the literature[48] and should have provided a good guide to those interested in correlating cultural chronology is the copper covered conical wooden ear spool which was first recorded by Moore from the Grant Mound, Duval County, Florida.[49] In March of 1949 I visited the collection of the late Donald O. Boudeman at his home in Kalamazoo. In the collection there were a number of specimens from Spiro including the male half of one of the biconical wooden copper covered ear spools identical to those from Grant Mound and the big Powell Mound at Cahokia. While evidence bearing on this latter site is not conclusive the best judgment suggests that these biconical ear spools are either not in the Old Village cultural level, or at least are not part of the earlier Mississippi occupation at the site. An excellent side and basal notch Cahokia point was found at Mount Royal[50] and the broken bases of three similar Cahokia points were found at Gahagan and were so identified by the excavators.[51] In addition,

[47]Conant, 1879; Titterington, 1938, page 2.

[48]Kelly and Cole, 1931, pp. 332 and 335; Titterington, 1938, Fig. 48

[49]Moore, 1896, Fig. 38; Griffin, 1946, page 88.

[50]Moore, 1894, Fig. 5

[51]Webb and Dodd, 1939, page 104.

from the Gahagan site there were at least fifteen small notched triangular points of the Cahokia Mississippi type.[52] This type of point is more or less an intruder in the southern Caddoan area and would seem to have been derived from Cahokia well up in the Mississippi time level. The connections of the Cahokia point are west through the central Plains into the Southwest in Developmental and later Anasazi levels. There have been found at Cahokia small stemmed and barbed projectiles which have apparently come in from the Caddoan area.[53] Points of this type have apparently not been found in most other Mississippi sites and they are never found in pre-Mississippi level cultures.

Another strong series of cultural cross-overs between Spiro, Gahagan[54] and the northern Mt. Royal St. Johns sites[55] may be seen in the common possession of square to rectangular copper plates with repousse designs (Plate 77). This particular form of repousse copper plate was not included in the listing of Southern Cult artifacts[56] but is apparently on the same general time level. Almost identical to the Mount Royal plate[57] with the eye design is a fragmentary specimen from Spiro (Plate 70).[58] The designs from two fragments of embossed copper appear in Plate 71.[59] This style of representation of a human figure on copper has also been found in the Oklawaha area at Old Okahumpka. It was recovered by Moore but has only recently been illustrated by Goggin.[60] Old Okahumpka as well as Mt. Royal and Grant are in the St. Johns II period of Goggin which is either well along in the Weeden Island level or is early Fort Walton.

An excellently portrayed human head on a copper plate was collected by Moore from a stone grave on Henry Island, Marshall County, Alabama.[61] This figure should be associated with items of the Moundville Focus and belongs in that level but unfortunately, Moore's excavations were not extensive. In the Hamilton manuscript additional references are given to the distribution of copper plates

[52] Webb and Dodd, 1939, Pl. 28, No. 1.

[53] Moorehead, 1928, Pl. XII, second row 1-3; Titterington, 1938, Fig. 13.

[54] Webb and Dodd, 1939, Pl. 28, No. 3, Fig. 1-3.

[55] Moore, 1894, Pl. XVI.

[56] Waring and Holder, 1945, pp. 9-10.

[57] Moore, 1894, Pl. 1.

[58] Better illustrated in Burnett, 1945, Pl. LXXVI.

[59] Better illustrated in Burnett, 1945, Pl. LXXV.

[60] Goggin, 1949, pp. 36-38.

[61] Moore, 1915, Fig. 52. This site is also reported on by Webb and Wilder, 1951, pp. 57-86. Moore's copper specimen came from Webb's Unit 2 which has significant cross ties with Moundville.

and embossed sheet copper. Their distribution and significance has been the subject of considerable comment. It should be clear by this time that the copper plates at Spiro have their closest analogies with the forms in association with fully developed Mississippi level cultures and have very little to do stylistically or conceptually with Hopewell forms. Spiro and its closely related sites in eastern Oklahoma are on the western boundary of the distribution of these copper forms. It is extremely doubtful that Spiro was the center for these forms or that their appearance at Spiro was earlier than elsewhere in the southeast.

One of the most distinctive Spiro features, almost amounting to a diagnostic cultural element, is the extraordinary number of pulley type ear spools found either at the Spiro locality or in the area in closely related sites. When a site has earspools of the pulley type with concentric rings, weeping eye, four world quarter and other decorative devices, a connection with Spiro of some sort may be assumed. This type earspool does not occur in the Hopewellian sites of the eastern United States but does appear in sites of the Mississippi period primarily along the western border of the Middle Mississippi culture. They have been found at Aztalan,[62] the John Chapman Village Site in Jo Daviess County, Illinois,[63] Cahokia,[64] the Cumberland culture about Nashville, Tennessee,[65] Jackson County, Arkansas,[66] Hiwassee component, eastern Tennessee[67] and at the Wilbanks Farm site in Cherokee County, Georgia in a presumable Etowah Complex level.[68]

The copper covered earspools of the Mississippi period most nearly resemble those of the Spiro, Gahagan and other Caddoan "cult centers" and both are not closely related to the Hopewell bi-cymbal type. In this respect the Copena earspools are somewhat intermediate in type between the Hopewell bi-cymbal and the Mississippi form.

Probably the most striking feature of the Spiro site is the unusual number of engraved conch shell containers with elaborate designs in a very distinctive style which serves to distinguish Spiro art from the eastern centers such as Moundville and Etowah, and at the same time by its subject matter serves to link Spiro to the east. Many of these large shells were almost certainly containers.[69]

[62]Barrett, 1933, pp. 348-354, Pl. 70

[63]Bennett, John, 1945, pp. 149-150.

[64]Moorehead, 1928, Pl. XXVII, Fig. 6.

[65]Thruston, 1890, pp. 168-169, 288.

[66]Thomas, 1894, page 225.

[67]Lewis and Kneberg, 1946, Pl. 70, Fig. C, page 119.

[68]Sears, W. H., personal communication.

[69]Burnett, 1945, page 22. Quotation from V. H. Jones. Waring and Holder, 1945, page 14.

There is no prehistoric evidence of the shaping of these large gulf shells to provide a trumpet, which is one of their outstanding uses in Meso-America. None of the decorated specimens from Spiro or elsewhere in the Southeast can be regarded as an import or trade object from Mexico. In addition large marine shell containers with specific Spiro designs were not traded or carried to the eastern centers. Even the single engraved "dipper" from the Sanders, Texas site does not have a specifically Spiro design. Another suggestion may be made with regard to these large shell containers and that is that the most reasonable source of origin is in the eastern Gulf or south Atlantic region on both sides of the Florida peninsula. They were probably not obtained from the area west of Pensacola.[70] The utilization of large conch shells as containers and as burial offerings is a trait which begins in Hopewell but they are never engraved.

Another decorative shell ornament is the small conch shell which was cut, pierced at the posterior tip of the canal, and worn as a pendant (Plate 83B). The information available to the Hamiltons indicated some 500 specimens of this type were obtained at Spiro. This is one of the forms which is commonly portrayed on god-animal representations in the Southern Cult of the Mississippi cultures. This form was not a part of the Hopewell culture and the shell columnella pendant does not appear in the eastern United States until the development of the Mississippi cultures. Another non-Hopewellian but distinctively Mississippian trait is the circular engraved shell gorget. This is also strongly represented at Spiro but is somewhat overshadowed by the large engraved shells. It is these shell gorgets along with the copper plates that are most suggestive of Meso-American portrayal of gods, men, and god-animal representations. There are some striking absences in familiar gorget types from east of the Mississippi in the Spiro gorgets. One of these is the rattlesnake or serpent gorget which is very common in the eastern Tennessee and adjacent territory in sites which come into the historic period. Another is the spider gorget which is not as common as the serpent and is found not only in eastern Tennessee but also in Illinois from the Cahokia area and from the Crable site in Fulton County, Illinois.[71] Another gorget type is the Pileated Woodpecker (in which the two woodpeckers or some other bird sit facing one another on the transverse arms of the cross). This style seems to be particularly common in the Cumberland and Moundville cultures. A very similar single bird does however appear at Spiro and perhaps represents the same basic concept.

[70] Griffin, 1946, page 65.

[71] In the Dickson Collection; Crable is a Spoon River Focus site with strong Oneota admixture, see Smith, 1951, Pl. V, f1. Unfortunately, Bell and Baerreis, 1951, Pl. VII, illustrate a spider gorget. Hamilton has also additional records of such gorgets from Spiro.

The Scalloped Disc gorget form is found on but one gorget at Spiro whereas it is quite common in the eastern Tennessee area. At Spiro it is present on a gorget with an engraved human figure done in a unique style.[72] Other gorgets with human figures at Spiro (Plates 88 C and D; 89A and B) do not bear representations of the same figures as from the Dallas-Mouse Creeks, Etowah or Cumberland cultures.[73] The Chunkee Player Gorget from Spiro[74] is very close to the earlier known forms but is done in the distinctive Spiro style. The Antlered Bird-Being (in which the figure is conventionally shown seated cross legged) is not found on circular gorgets at Spiro although antlered human heads (Plate 125 A), fish, and serpent heads (Plate 132 B and 114 A) are represented. The cross, placed inside of a circular gorget either by incising or excising, is on one example from Spiro (Plate 82 C). The cross is also found at Spiro placed in the center of a human hand carved from shell (Plate 82 D) or as a part of other decorative features (Plate 89 A; and 87). The shell mask gorget is not found in Spiro or other Caddoan sites. These comments have been presented to emphasize that certain distinctive forms are not found at Spiro but are common in other sites east of the Mississippi. These latter sites do, however, have other characteristics such as monolithic axes, flint maces and engraved copper plates in common with Spiro.

It is not my intention to enter into the vexing problem of the connections of the Spiro material with Mexico in any detail. At least two of the designs, however, on the shells are interesting. One of these is the small birds seemingly in the act of climbing one side of a conventionalized tree which has been divided into half by the manner of its shading. This design impresses me as similar to late central Mexican figures but I am unable at the moment to produce a very close parallel. A somewhat similar appearing portrayal is given in the Feast of Water-fritter Eating portrayed in the Sahagun manuscript, although the flowering tree in that illustration is not like the tree on the Spiro shell.[75] Another is the representation in Plate 89 A of a circular gorget with god-humans supporting symbols attached to a holder in one hand and holding in the other pots from which smoke or vapors are ascending. This representation is also one which is in Meso-America. One place where a parallel idea might be intended is at Santa Rita Corozal in British Honduras.[76] There are many representations in the codices of the Borgia group. For example, in one

[72]Burnett, 1945, Pl. LX.
[73]Burnett, 1945, Pls. LXI-LXII.
[74]Burnett, 1945, Pl. LXIII.
[75]Seler, 1902-1903, page 187.
[76]Gann, 1900, Pl. XXIX-XXXI.

of the portrayals involving Tlaloc, the Rain God and Chal-Chiuhtlicue, the Water Goddess, the vessel in between them is involved in a ceremony dealing with the growth of corn, or in other ceremonies in which a vessel forms an important part.[77] Another, even more likely interpretation is that the vessel may be one involved in a ritual ceremony such as is described for the Hasinai at the initiation of medicine men;[78] or the small vessel containing very fine meal and sunflower seed connected with the harvest feast; or the vessel containing cazina, which they drank warm and covered with foam; or as one of the vessels used as incense burners in their fire ceremonies.[79] Quite a number of figures in late Mexican codices are represented as holding serpents with barred bodies[80] and it is fairly obvious that the barred staffs in the hands of the Spiro "priests" have an association with serpents.

MacNeish has recently given a list of traits which he believes connects Spiro and the Southeast with Meso-America, particularly into the Huasteca area of northeastern Mexico.[81] These resemblances are largely to a time level which in Meso-America can now be called the Militaristic Period during which the Mixteca-Puebla (or Nahua) culture was expanding outward from Central Mexico. It is for this reason that most writers have seen suggestive resemblances between the Southern Cult art portrayals and the representations of Meso-American ceremonial life on the central American codices. This view has been denied by Krieger who states, "It is my present belief that the late cult owes considerably more to Hopewell than it does to any specific late influence from Middle America, yet there are also a number of traits which seem characteristic of the Southern Cult alone."[82] Whether Krieger still espouses this view is not known. The view adopted in this paper is that ceremonial influences did enter the Caddo area and the Southeast from Meso-America and that this occurred on a post-Hopewell or Middle Woodland time. These influences were varied and extended over a fair time period. It may also be said that the ceremonial and art resemblances are largely if not entirely on a post-Teotihuacan level in Mexico.

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[77] Seler, 1902-1903.
[78] Swanton, 1942, pp. 221-230.
[79] Swanton, 1942, p. 215.
[80] Seler, 1902-1903, page 19 and 29 has some of these examples.
[81] MacNeish, 1947.
[82] Krieger, 1945, page 512.

There have been opinions expressed as to the cultural placement of Spiro in a number of recent articles. It is my intention to summarize these views. Orr[83] believes that there were three successive "components at the site which represent 'a cultural continum.'" These components he called Early, Middle and Late Spiro. Early Spiro is equated in time with Coles Creek because of the presence of Coles Creek and French Fork Incised, and Coles Creek Plain types, or of close relatives of these lower valley types, at Spiro. Unfortunately no clear evidence was presented of superimposition or of grave association to clearly separate such an "Early" Spiro component from the "later" ones. The association of a shell tempered jar with a short outward angled rim cannot be regarded as evidence that Early Spiro precedes Middle Mississippi pottery complexes. Coiled basket impressions on the base of two of the Early Spiro types is a feature reflecting the geographical position of Spiro in relationship to the Southwest and the early appearance of coiled basketry in the Ozarks area. Coiled basketry did not spread much farther to the east in early prehistoric times. Another interesting trait assigned to this level is the perforated mussel shell hoe which is a Mississippi period time marker and is found in earlier cultural levels in very few instances. It was associated with the shell tempered vessel.

The Middle Spiro Component as defined by Orr is the period of the Southern Cult ceremonial paraphernalia and accoutrements. Within this second stage Orr has recognized but has not clearly defined early and late complexes. Most of the material illustrated in this volume and in the Heye Museum publication would belong to this Middle Spiro Component. Four shell tempered vessels are included as trade pieces at Spiro with a hooded water bottle assigned to the ate phase of the Middle Component. In summary, Orr said:

"The Middle component was the period of most extensive occupation and greatest cultural development--this is clearly seen in the quantity and excellent quality of the artifacts and the large number of mound and house features associated with the component. The concepts of the Southern Cult dominated the ceremonial complex but affected the utilitarian complex to a considerably lesser degree. Trade materials from distant areas suggest wide cultural contacts to the north, east, and south."[84]

The Late Spiro Component is characterized by an absence of cult paraphernalia and is regarded as an intermediate stage between

[83]Orr, 1946. Since this paper was written there has been published a brief but excellent summary of Oklahoma archaeology in which there is a section on Spiro. See Bell and Baerreis, 1951.

[84]Orr, 1946, page 237.

Middle Spiro and the Fort Coffee Component which is the last aboriginal occupation at the site.

Our main concern is of course with Orr's views on the cultural connections indicated by the Middle Spiro component. "The presence of Cult paraphernalia in cultural units does not necessarily indicate close relationship with the Middle Spiro component though it may suggest contemporaneity."[85] This statement is quite acceptable for many students have recognized the cultural divergence exhibited by sites and centers which possess common cult attributes. Orr places his Middle Spiro component into a closely related cultural unit called the Spiro Focus along with five other sites. These are the Groseclose site on the Canadian River near Eufaula, Oklahoma; the Brackett site near Tahlequah in northeastern Oklahoma; the Norman site on the Grand River near Wagoner, Oklahoma; the Gahagan site on the Red River in northwestern Louisiana; and the Mineral Springs 4 site in southwestern Arkansas. The Sander's Place site in Lamar County, Texas is regarded as "a closely related component." Because of certain cultural correspondences between recorded Natchez tribal culture and Spiro Middle Component traits Orr suggests "Spiro may be in an ancestral role." He also believed that the Spiro Focus could be equated in time with the beginning of Temple Mound II of Ford and Willey[86] and could be placed within what was called the Middle Mississippi Phase by Cole and Deuel.[87] Spiro and other "Caddoan" components develop from Coles Creek in their native area.

Another outstanding authority on the Caddoan area Alex D. Krieger has two recent major contributions in which he presents interpretations of the cultural position of the main Spiro ceremonial complex. On the basis of Orr's assignment of Sanders pottery to the late phase of Middle Spiro, he suggests that Middle Spiro belongs in a late stage of the Gibson Aspect, which he questioned as having much to do with the Caddoan people largely responsible for the Fulton Aspect of the same Texas-Louisana-Oklahoma-Arkansas area.[88] He equated Middle Spiro with Temple Mound I (more commonly called Early Mississippi) in which he was clearly at variance with Orr's temporal placement and comparative cultural equivalence [89] His view was also opposed to those of Waring and Holder,[90] Griffin[91] and most other students.

[85]Orr, 1946, p. 250.
[86]Ford and Willey, 1941, Fig. 6.
[87]Cole and Deuel, 1937, page 36.
[88]Krieger, 1946, page 267.
[89]Krieger, 1946, p. 270.
[90]Waring and Holder, 1945.
[91]Griffin, 1946, pp. 85-86

In his latest publication, Krieger has espoused views on cultural and chronological connections which are markedly divergent from those of his associates.[92] While his analysis and comparative treatment of the Davis site is a most stimulating study, I am convinced that his interpretations of the sequence of materials at the site itself and their exterior connections are not the only ones possible and in some instances are not the most likely.[93] Krieger believes that Middle Spiro follows the Alto and Gahagan foci. He also believes that Alto and Gahagan are on the Hopewell-Marksville level, and suggests that Middle Spiro and Alto 2 are on the same level with Late Hopewell and Copena. He thus equates Gahagan and (in his view the later Spiro Focus) with Middle Woodland or Hopewellian and regards these Gibson aspect sites as preceding the Mississippi period cultures of the Mississippi Valley and the Southeast. Such a radical correlation was produced by a number of interpretations favored by Krieger. These may be briefed as follows: 1. The Davis site was in existence for a long period of time. 2. Alto Focus includes trade specimens of Marksville-Troyville and possibly Adena in Phase 2 of the Davis site; that Phase 1 is coeval with sand tempered pottery which is regarded as Tchefunctiod. 3. Many lithic types related to the Archaic levels in the east are a part of the Alto Focus. 4. The engraved ceramic complex and mound type at Davis are derived from Meso-America on a time and cultural level there called the Archaic or Formative. 5. The engraved technique at Davis is the earliest appearance in the United States and spread north and east from there.

The data presented in the cultural comparison I have made in this paper is recognized as not compatible with some of the views of Krieger. It is maintained that the cultural elements of Spiro and Gahagan which indicate their equation with a full Mississippi culture and period are more diagnostic and significant than the traits presented by Krieger which led him to group these units on a Hopewellian level.[94]

The most recent paper on the Spiro Focus is a brief summary of one season's work at the Harlan site in Cherokee County, Oklahoma.[95] This site is regarded by Bell as a part of the Spiro Focus but he equates the site in time with Orr's Early Spiro. It should be

[92]Newell and Krieger, 1949.

[93]See my review of the Davis Site in the American Anthropologist, Vol. 52, No. 3, July, 1950, pp. 413-415.

[94]Newell and Krieger, 1949, pp. 219-222.

[95]Bell, 1949.

noted that Orr did not include Early Spiro in his Spiro Focus. The Harlan site has vessels regarded by Bell as similar to three of the major Alto Focus types. It also has vessels which are close to the East Mound of Clark County, Arkansas which Krieger regards as a Haley Focus site quite a bit later than either Spiro or Alto. As Bell observes, "Obviously there appears to be some contradictory evidences which arise as the result of excavations at the Harlan site." Bell believes the site to be early within the Gibson Aspect but does not assay a broader cultural interrelation.

The time position of Middle Spiro is not accurately known. At one time, along with other archaeologists, I favored such a late date for this material that it would have been post DeSoto. With increasing data from all over the eastern United States most archaeologists now regard the period of the Southern Cult as belonging to an intermediate Mississippi Period level which marked the culmination of the Mississippi culture development. The height of the so-called Southern Cult was in existence during the DeSoto entrada and would go back in time to at least 1300 or 1400. Few archaeologists now regard this Southern Cult as an efflorescence brought about by a cultural crisis and a phenomenon which spread with great rapidity throughout the southeast. A more reasonable view is that it represents the ceremonial activities and religious mythological beliefs which achieved wide acceptance in the Southeast from the Caddoan area to the Atlantic Coast during the Mississippi period. Some of the elements and artifacts have a connection in Hopewellian practices and products but the distinctive characteristics are the product of local genius stimulated from Meso-America and to some degree from the Southwest. The artistic expression of the socio-religious pattern of the Mississippi culture is available to archaeology in the form of the Southern Cult artifacts. These vary locally reflecting the individual artisans ability and the particular mode of tribal interpretation of a wide spread cosmology. Wide spread trade in some special artifacts provide us with excellent checks on inter-areal chronological comparisons. It is precisely these latter items which suggest that Middle Spiro does not precede similar artistic expressions to the east but is instead on a relatively horizontal time level.

SUMMARY

The Spiro site is regarded as one of the highest importance in the Caddoan area. It contained one of the most concentrated deposits of ceremonial material ever uncovered in the United States. These objects, along with the circumstances of their deposition, rather clearly indicate that the site was occupied during what is called the Mississippi Period in the Southeast. This is the last major archaeo-

logical period recognized before the influx of Europeans and items of European manufacture. While the ceramic remains and house patterns, fundamental facets of native life, rather clearly indicate an Indian group at home on the eastern border of the Plains area, the more striking and esoteric artifacts just as clearly denote a culture with strong relationships to the socio-religious patterns of the southeast, best represented in the literature from early accounts of Muskhogean and Natchez tribal life. There can be a number of possible explanations of these relationships. Since certain migration legends of the Muskhogeans speak of their migration from the west into their trans-Mississippi (?) homes, one might postulate that Spiro would be one of the logical centers for an early Muskhogean location in the central Arkansas Valley. This is unsatisfactory because of the implied contemporaneity of Spiro, as demonstrated in this paper, with many flourishing southeastern Middle Mississippi centers, which were almost certainly Muskhogean. Orr has intimated that Spiro and related sites in eastern Oklahoma could be viewed as an early home of the Natchez before their removal to the Lower Mississippi Valley. This hypothesis seems to be negated by a continuous archaeological sequence in the Natchezan area which would provide the cultural growth of the Natchez in their area. This sequence does not indicate a movement of people from eastern Oklahoma but does indicate strong influences moving south from the Memphis area on a time level equivalent to the Spiro culmination. As far as I am aware there is no indication that Siouan speaking people were ever intimately connected with the complex southeastern ceremonial developments and there is specifically no suggested association of the geographically closest Siouan tribes such as the Osage and Quapaw, or in their presumed archaeological ancestry, with the Spiro culture to indicate any connection to this linguistic group. The most reasonable linguistic group is certainly the southern Caddo. It may be assumed that one or more of their northern tribal units close to the prehistoric Witchita and Pawnee came under the influence of the developing ceremonial life of the Southeast in the Mississippi Period with its strong overtones of late Mexican concepts. By and large the evidence suggests to me that this influence was largely to eastern Oklahoma rather than from that area to the Southeast.

Following the great period of Southeastern culture, there is a decline which is represented in eastern Oklahoma by the Fort Coffee Focus. This has some elements indicating continuity from the Spiro Focus but there are other elements which speak for increasing modification of the every day cultural life by influences from the central Mississippi Valley and from the central Plains. Most archaeologists regard the Fort Coffee Focus as protohistoric Caddoan and these groups are most likely to be the descendants of the Spiro people.

Textile Fabrics from the Spiro Mound*

by

Charles C. Willoughby

The art of weaving cordage from the inner bark of various trees, and in some sections also from the hair of certain animals, into soft pliable cloth without the aid of the loom, was known and practiced over a large portion of both North and South America. The discovery and development of the loom in prehsitoric times, the use of which was common from the Pueblo region of the Southwest, southward, and covered the most of the Andean region, is a further development in textile making which attained a remarkable high stage in ancient Peru. The simple frame, however, in its many forms had the widest distribution and extended over a large portion of both Americas. From this simple contrivance the loom with its shuttle and complicated sheds was undoubtedly developed. The loom, proper, however, was apparently unknown among the great earthwork builders of the United States, but some form of frame was necessary for suspending or holding fast the warp cords to allow the woof to be added by manipulation of the fingers, sometimes aided, no doubt, by a wooden or bone needle or a twig. This occurred in many sections.

One of the finest mantles produced with the aid of the simplest kind of frame is the work of the older Tlingits of Alaska (Willoughby, 1910, pp 1-10).

In general the frame ranged from a line stretched between two stakes set in the ground to the elaborate contrivance used by the Nootka Indians of Vancouver Island.

The larger proportion of the cordage prepared for loom weaving was spun with the aid of a spindle and whorl, but most of that used for frame weaving was spun by rolling between the palm of the hand and the bare thigh, which seems to have been a very effective way, as the size and regulation of the cord could be easily controlled by this method.

The cordage used in weaving the fabrics from the burial mounds of the Great Earthwork Builders of Ohio and also those from the great mounds of the southern and western states were of this class and were undoubtedly produced by hand twisting, and as above noted the weaving was done in some kind of frame.

*This paper was written by Dr. Willoughby shortly before his death and was dictated from his sick-bed. It is here included just as received.

In the cloth that I have examined from the Spiro Mound group of eastern Oklahoma we find cordage of the following materials: vegetal fibers of different kinds, some of which are too badly disingegrated for identification; hair or wool from the buffalo and the hair of the rabbit, used either alone or in combination with vegetal fiber. Rabbit hair, however, was a favorite material as it was easily procured, could be readily dyed, and, like the mountain goat wool of the Northwest was spun into yarn by itself or in combination with vegetal fiber or used as a wrapping over a foundation cord of somewhat stronger vegetal material.

Fragmentary garments of combined rabbit hair and vegetal fiber have been obtained from a burial in the Etowah group in northern Georgia, the Seip mounds of Ross County, Ohio (Willoughby, 1928, pp. 273-287), and the Spiro group in eastern Oklahoma where it was extensively used both with and without the addition of vegetal fiber, and as time passes it is probable it will be found to have been common over a much larger area.

It seems that the first or primary twist of the strands in both warp and woof for cordage of cloth from the burial mounds of Ohio and from the South and West is generally toward the right, dextral or contrary clockwise. If the cord thus produced is doubled and again twisted, or if two such cords are twisted together into one, it is naturally toward the left or in the sinistral direction. Such doubled cord is stronger, will wear better and has a more finished appearance, and it makes the most satisfactory cloth.

At the present time the production of primitive cloth in North America by native tribes has practically ceased, and only in a few scattered localities do we find the last stages of what was once an important well developed craft. Even in our larger museums one can rarely find a good example of the best class of native Indian cloth, that does not show some trace of White influence in its production. A few purely native pieces do exist, however, but they give but a meager idea of the quality and extent of the textile craft as it undoubtedly appeared in later prehistoric times. It is therefore from the writings of early explorers and from occasional old specimens collected by them, and also from ancient graves and burial mounds, that most of the material has been obtained which gives us the knowledge we now have of this excellent old native art.

The haphazard discovery and sale to curio dealers of many of the archaeological objects found in the Spiro Mounds before the exploration of the group by the University of Oklahoma, has been mentioned elsewhere.

The Peabody Museum of Harvard University obtained a few small fragments of the Spiro Mound cloth from a Chicago dealer in 1936. These have been studied and are here described in connection with those sent me by Mr. Henry W. Hamilton of the State Archaeological Society of Missouri and by Mr. H. M. Trowbridge of Bethel, Kansas, the owner of the remarkable collection shown in most of our illustrations. The pieces forwarded to me are all small but they serve well enough to show the materials used in spinning the cordage, the stitches used in weaving the cloth and the general process followed in its making.

There was secured by the Peabody Museum of Harvard University a mass of perhaps seventy-five pieces a few inches in length of crudely braided three-strand cords averaging perhaps one-eighth inch in diameter of irregularly twisted buffalo hair, the workmanship being very crude. Du Pratz (1758, Vol. II, p. 191) says that in the Muskhogean region girls at the age of eight or ten years put on a little petticoat which is a kind of fringe made of mulberry bark. The crudeness of construction of these cords in contrast to the general excellence of the work shown in the following example would seem to indicate that they were the production of an inexperienced worker, and they may well have been made by a young girl as a part of her training in textile work.

An excellent fragment of about three square inches in size was also secured by the Peabody Museum of Harvard University. This is in close checker weave, about twenty-two cords to the inch, of finely prepared buffalo hair, primary twist (to the right) each cord being about the size of carpet thread. the color is jet black, the material having obviously been dyed either before or after weaving, for, in its natural state buffalo hair varies in color from yellowish brown to black. This piece of cloth is shown full size in the center of Plate 141. These are the only examples of this material that I have seen from the Spiro group although Mr. Trowbridge sent other specimens to the National Bureau of Standards for identification which may have been buffalo hair.

There was also secured by the Peabody Museum of Harvard University the largest fragment of polychrome cloth appearing in Plate 140. Other pieces of the same or a similar fabric were secured by various collectors and museums. A drawing of one of the Flag-like designs is given in a, of Plate 150, which shows the various stitches and the method of combining them. The material was analyzed by Dr. E. E. Tyzzer of the Comparative Pathological Department of the Harvard Medical School, whose verbatim report follows:

"The findings in regard to the fabric from the Spiro mound, samples c, i, k; (Plate 150) are quite interesting. The woof of portion i, the dull brown body of the cloth, is composed of a mixture of fur and vegetable fiber. While the former is more conspicuous and may have composed 50 per cent or more of the yarn, yet there is a considerable amount of bast fiber, and occasional bits of woody plant tissue. It it interesting that the vegetable fiber of the woof is so much better preserved than the material of the warp. Samples c and k are composed wholly of dyed rabbit fur.

"The material labelled 'Warp' (h) shows a coarse fibrillar structure with fragments of vegetable tissue, some fragments show quite a number of intermingled hairs but considering the great shrinkage and disintegration that has taken place in the warp I do not see how any great proportion of fur could have entered into its composition for the hairs are quite well preserved. It is even possible that the hairs are derived from the woof, a certain number getting worked into the warp in the process of weaving."

The vertical warp cords, h, in the piece of fabric had almost wholly disappeared but enough remains together with the black rabbit hair cords, c, e, to hold most of the woof together. As reported by Dr. Tyzzer the yellowish-brown woof, i, is of rabbit hair mixed with about an equal amount of vegetal fiber. The woof of the flag-like red figures, k, and the black stripes and outline of the design, c, e, are of dyed rabbit hair without an admixture of vegetal fiber. The double woof cords, f, show a left-hand twist. In the upper pair, g, they are reversed and are twisted to the right. This alternate arrangement of the twists in the woof gives a pleasing variety to the surface of the cloth. Throughout the body of the fabric this alternate sequence of the twist persists (Holmes, 1896, p. 31).

Where the horizontal woof cords of separate colors meet they interlock and each color is carried back and forth, their line of juncture being covered with cords of black rabbit hair, as in d and e, carried through the cloth or serving as woof cords, as in c.

There are several pieces of this polychrome cloth from the Spiro mound in various collections and museums. They are mostly small and were largely obtained from curio dealers. It is doubtful whether they originally formed a unit, or are fragments of several distinct pieces, but the chances are that the disintegration of the warp cords caused the falling to pieces of the fabric when handled by the not too careful discoverers. In addition to the largest pieces shown in Plate 140 and in the drawing, Plate 150, a, there are some half dozen fragments illustrated in Plate 140 and in the lower portion of

Plate 141 which were sent me by Mr. Trowbridge and Mr. Hamilton. The material and technique are apparently uniform with the larger one above described. A photograph of several small fragments of this polychrome cloth was also sent me by Mr. McKern of the Public Museum of Milwaukee.

On Plate 144 are shown several pieces of coarse feather and rabbit hair cloth laid together with their edges touching. According to Mr. Trowbridge the sizes of the three largest are as follows: 6 x 13, 3 x 12, and 3 x 10 inches. The largest piece consists of several layers matted or stuck together much like the matted fragments shown on the left in Plate 142 and one of the other large pieces consists of two fragments also stuck together in a like manner. The lower portion and the right half of Plate 144 consists of small fragments and detached feathers from these mutilated mantles that have been placed in a glass topped box for preservation and which has not been recently opened. Several of the mantles had apparently been folded together when stored in the mound and when unearthed by inexperienced excavators had not been handled with due caution. In the general debris of the cache where they were found were a large number of matted fragments of the warp of these mantles that bore but little resemblance to their original appearance. I have received a considerable number of these fragments for study and find they are broken warp cords of the shawls or mantles themselves that have come apart through the disintegration of the woof cords that bound the warp together. These broken pieces of the warp that were sent me were in various lengths up to about five inches. The length of the warp cords in the original mantles was probably about three to four feet. Four of these feather covered fragments appear at the left in Plate 143 and three of them have pieces of the woof still adhering. Smaller fragments of the warp with feather in fair condition and several detached feathers are also shown in the Plate. To the right of Plate 142 are seven fragments of warp covered with rabbit hair instead of feathers. This hair has been dyed yellow, red and black, the same colors were apparently used in dying the feathers. The four specimens at the extreme right are dark red, the two lower adjoining ones at the left are a dull yellow and their upper portions are black. To the left of the plate are two masses each showing several short sections covered with rabbit hair which show very clearly the small binding cords which fastened the masses of hair to the vegetal cord foundation. The upper bunched mass shows several fragments of the black and yellow warp, as found, their upper ends also showing binding cords which held the hair to the vegetal warp.

The technique of these capes was as follows: Each warp cord was usually made of one or two cords of rather coarse vegetal fiber of proper length for the garment. If two cords were used as was usual, they were laid together side by side, not twisted together. To these cords were attached red, yellow, or black feathers or bunches of rabbit hair by binding their proximal ends to the cord with fine twine. In some instances the feathers or hairs were caught between the two cords making up each warp unit as in the Maidu blankets, and then wrapped around the warp cord. The wound ends of this covering were then covered by distal ends of other feathers or hair which were applied in sequence to the cord in the same manner as the work progressed. It is probable that glue was used in some instances instead of winding with cord, or perhaps a combination of the two methods. Some of the glue made by our Indians would not dissolve in cold water, and such glue may have been used in small quantities. When the proper number of these feathered warp cords were prepared, they were placed side by side and bound close together by twined weaving with double woof cords of vegetal fiber at intervals of about one-half inch, the woof being concealed beneath the loose distal ends of the feathers or hair of the warp. By this means a closely woven garment of attractive appearance and very useful in cold weather was produced. It should be remembered that as originally prepared, the warp cords were neatly and evenly covered with feathers or hair, the loose distal ends of which were of sufficient length to properly conceal both woof and binding cords.

The types of mantles above described whether covered with feathers or rabbit hair are apparently a new form. Feathered covered mantles were not uncommon throughout the region of the United States in early Colonial times. John Smith says "some were made of turkey feathers, so prettily wrought and woven with threads that nothing could be discerned but feathers" (Smith, 1819, pp. 129-130). Lawson writes that a doctor of the Santee Sioux was "warmly and neatly clad with a match cloke, made of turkies' feathers which makes a pretty show, seeming as if it was a garment of the deepest silk shag." He also says "Their feather match coats are very pretty, especially some of them which are made extraordinary charming, containing several pretty figures wrought in feathers, making them seem like a fine flower silk shag; and when fresh, they become a bed very well, instead of a quilt." (Lawson, 1860, p. 37).

Du Pratz tells us that the Indians of Louisana make feather mantles "on a frame similar to that on which peruke makers work

hair; they spread the feathers in the same manner and fasten them to old fish nets or old mantles of mulberry bark. They are placed, spread in this manner; one over the other on both sides; for this purpose small turkey feathers are used; women who have feathers of swans or India ducks which are white, make these feather mantles for women of high rank." (Du Pratz, 1758, Vol. 11, p. 191). The Indians of Louisiana according to Butel-Dumont made feather work as follows: "With the thread they obtain from the lime tree bark they make a species of mantle, which they cover with the finest swan's feathers fastened one by one to the material, a long task indeed, but they do not count this trouble and time when it concerns their satisfaction." (Butel-Dumont, 1753, Vol. 1, pp. 154-155).

The following is from the account of De Soto's private secretary. When De Soto entered the village of Tascaluca in the present State of Alabama the chief met him upon a kind of balcony on a mound at one side of the square, "he wore a pelote or mantle of feathers down to his feet, very imposing; he was seated on some high cushions, and many of the principle men among the Indians were with him." (Smith, B., 1866).

We may be sure that feather garments from capes to long cloaks were in not uncommon use throughout the United States from New England to California in early historic days, although but few of them have been preserved. Some of them were not only warm and serviceable but were beautifully wrought in attractive designs in various colors.

The Peabody Museum of Harvard University has four feather mantles in perfect condition, some and probably all of them made by the Maidu Indian women of Captain Sutter's ranch on the Sacramento River. Three of them were obtained in 1841 by Captain William D. Phelps of the Ship Alert owned by Bryant and Sturgis of Boston. These were given to the Museum by the daughter of Captain Phelps in 1927. The mantles measure approximately three and one half feet by five or six feet and have tying strings at their upper corners. The procedure of making Maidu feather mantles has been noted on pages 433-437 of Volume XXIV of the American Anthropologist, and from Captain Phelps, journal we have a few additional details: "He saw a string on stretch about 500 feet in length into which the feathers of the wild duck (Mallard) were closely worked, part of it white and part black. This was to form a mantle or at least the warp of one. The labor of making one of these blankets is immense. Captain Sutter presented me with one which he assumed occupied six females four months in the making."

The long warp string was doubled and the larger feathers were stripped of their webs, which together with the smaller downy feathers were closely wrapped around and caught between the double warp cords which formed a line one half to three-fourths of an inch in diameter. This feathered covered double cord was then carried back and forth thus forming the warp of the garment five or six feet in length. This warp was closely bound with plain woof cords at intervals of about an inch in twined weaving, the woof being wholly concealed beneath the ends of the feathers. These mantles varied in color. The bodies of three of them is a pleasing gray, the ends of one terminate in two stripes, each three or four inches wide, the inner stripe white and the outer one black, and one side of the mantle is ornamented with a dozen brilliant red scalps of California woodpeckers. Another of the four mantles has a body of black feathers streaked with white and a stripe some 6 inches wide near each end. These garments are thick, and handsome, and in winter would be an excellent protection against inclement weather.

In Plates 145, 146, 147, 148 are shown seven large pieces of mantles or shawls and fragments of what may be skirts such as were probably common throughout the mound building area of the South and West in prehistoric days. Holmes has given numerous historical references to similar garments in his paper on our native textiles (Holmes, 1896, pp. 13-46). He also has reproduced several old drawings which show the method of wearing garments of the same general types as were secured from the Spiro Mound group. The examples represented in Plates 145-149 are all woven of finely spun rabbit hair, originally dyed a dark red, and some are ornamented with figures in concentric circles or half circles, evidently derived from the well known symbols of the sun, or in stripes or zigzag lines, either dyed yellow or in the natural color of the undyed garment which may have undergone considerable change in its color tone during its long rest in the mound.

A fragment of another mantle from the Etowah mound group in Northern Georgia showing a symmetrical arrangement of concentric circles enclosing a cross together with equal armed crosses, appears in my paper in Moorehead's report on the Etowah exploration. All of these decorative designs apparently are produced in the same general way termed by Holmes "the lost color process." This was followed in the decoration of certain pottery, calabash vessels, cloth, etc. in various sections of America.

In the simpler forms of this process the designs were drawn in hot wax or a similar substance which when cold were impervious to the dye used in coloring the body of the cloth. For example, if the

cloth shown on Plate 147 was woven in undyed rabbit hair the half circles may have first been painted in hot wax or some similar substance which penetrated the cloth and formed a surface impervious to the red dye of the background. After the waxed half circles were cool and hard the cloth was probably immersed in cold red dye, then washed in cold water, after which it was placed in hot water which removed the wax from the half circle; leaving the designs in the original color of the cloth. This process is a simple one and was followed by the Hawaiians in decorating their gourds. There is some evidence that two or more colors, however, were sometimes used in America, and often among the Malays very elaborate work was produced in several colors.

All the examples in Plates 145-148 with the exception of the upper one in Plate 148 are in open twill-twined weave, the technique being illustrated in Plate 151.

The upper garment in Plate 148 is in checker weave. The largest example in Plate 141 is also in checker weave, and in the drawing, Plate 151 b, this weave is also shown with the selvage along the upper edge which does not appear clearly in Plate 141. The number of cords to the inch are about eight to each specimen.

The dark lines in Plate 148 and in other specimens are, of course, accidental and are the result of folds in the textiles when in storage, in the mound.

In Plate 148 (bottom) we have a somewhat different type of garment also of rabbit hair dyed red, in open twill-twined weave, warp ten to the inch, woof three to the inch, with warp apparently running lengthwise to the fabric instead of cross wise as in the other examples of this weave, shown in the Plates. It is, however, possible that the garment was originally wider and that a considerable portion is missing.

Plate 149 illustrates four fringed skirts such as were worn by women. Three of them form original packages as found, and the fourth is opened and spread out. The loose cords at the bottom of the plate have become detached from the skirt during its opening.

The use by the Indians of the hair of various animals in the preparation of yarn for the weaving of mantles and other garments was undoubtedly much more extensive than is generally known, as the remarkable collection here described seems to prove. As we have before mentioned, fragments woven of combined vegetal fiber and rabbit hair were taken from the Etowah temple mound in northern

Georgia, also from the Seip mound group in Ross County, Ohio, as well as from the Spiro mounds in Oklahoma.

Bandelier tells us that rabbit hair mantles (Bandelier, 1890, pp. 158-169) were worn by both the Moqui and Zuni in ancient times and that in Mexico, feathers and rabbit hair were combined in a robe that astonished the Spaniards by the beauty of its color and the intricacy of its designs, but that in the north, each material was used by itself.

It is possible, however, that in Plate 142 and 143 the warp cords shown covered with rabbit hair and those covered with feathers, were from the same garment. The Carolina Indian men wore "match coats" woven from the hair of the Oppossom (John Lawson, 1860, p . 191).

PLATE DESCRIPTIONS

PLATE 140. Fragments of Polychrome cloth. In the largest example flag-like figures, the warp is of vegetal fiber largely disintegrated. The woof of the background is of about equal parts of rabbit hair and vegetal fiber now being held together largely by the vertical black outlines of the figures in pure rabbit hair. The inner portion of the flag-like figures is rabbit hair dyed a dark red. The background of the cloth is a brownish yellow. Peabody Museum of Harvard University No. 36-40-10/6104. Most of the other fragments shown on Plate 140 are from the same fabric or a similar one, and the same colors and materials were used in their making. The twisted spiral at the upper left corner formed an edging to the cloth of this type, the holes which held the woof cords being visible. The two fragments near the upper right corner are of vegetal fiber, the cords being neatly wound with rabbit hair colored dark red. Illustration 9/10 natural size.

PLATE 141. The largest example at the top of the plate is woven of rabbit hair in checker weave, about eight cords to the inch. The color is red with lighter streaks of yellow. The upper edge shows the selvage which appears more clearly in the drawing, Plate 151 b. This fragment is of the same weave and material as the example illustrated in the upper portion of Plate 148, although probably from a different garment. The black specimen in the center of the plate is woven of buffalo hair also in checker weave about twenty-two cords to the inch. The fragment at the bottom of the plate is a piece of polychrome cloth similar to the ones shown in Plate 140. The three spirally wound pendant-like objects probably held bunches of feathers and may have been used in ornamenting garments. Illustration 9/10 natural size.

PLATE 142. Fragments of warp cords from mantles of feathers and rabbit hair. The nine specimens are sections of warp cords covered

with rabbit hair dyed red, black or yellow. Larger pieces appear in Plate 144. Illustration natural size. H. M. Trowbridge collection, Bethel, Kansas.

PLATE 143. Fragments of warp cords from mantles of feathers and rabbit hair. The eleven examples are cords covered with, or feathers detached from the warp cords of feather mantles; same colors as Plate 142. Larger pieces appear in Plate 144. Illustration natural size. H. M. Trowbridge collection, Bethel, Kansas.

PLATE 144. Fragments of feather mantles or shawls. Fragments of twined woven feather mantles or shawls and detached feathers from same, also fragments of rabbit hair mantles of the same weave, colors of both types are red, yellow and black, see also Plates 142 and 143. Plate 144 is made up of numerous fragments of both types of mantles which should have been separated before photographing. Size about 17 x 21 inches. Simple twined weaving warp about five to the inch, double woof cords about one-half inch apart. H. M. Trowbridge collection, Bethel, Kansas.

PLATE 145. Fragments of a shawl or mantle of rabbit hair. Upper illustration: Fragments of the lower portion of a mantle or shawl of rabbit hair, color, dark red, warp about eight to the inch, double woof about two to the inch, open twill-twined weave. Size 13 x 26 inches. The upper left corner is from a different fabric, with warp nine to the inch, woof two to inch. Lower illustration: The upper portion of a rabbit hair mantle showing tying cords, open twill-twined weaving, warp about 10 to the inch, double woof cords about three to the inch. Size 23 x 51 inches. The zigzag decoration near the top is in dull yellow against a background of dark red. H. M. Trowbridge collection, Upper #2742; lower #2744, Bethel, Kansas.

PLATE 146. Rabbit Hair Mantle. These two pieces are alike in color, texture and weave and may be part of the same garment. Open twill-twined weave. Warp about eight to the inch, double woof about two to the inch. Size, upper piece 23 1/2 x 47 inches. Lower piece, 19 1/2 x 53 inches. The dark streaks are caused by the folds of the fabrics while in the mound, and this is true in all other examples in the illustrations. Color dark red. H. M. Trowbridge collection, upper #2747, lower #2746; Bethel, Kansas.

PLATE 147. Rabbit Hair garment with fringed edges at top, bottom, and one side. The color is dark red with half circles of dull yellow at the ends and left side, apparently a portion of the right side is missing, open twill-twined weave. Warp about ten to the inch, double woof about three to the inch. Size 26 1/2 x 39 inches. H. M. Trowbrdige collection, #2743, Bethel, Kansas.

PLATE 148. Fragments of rabbit hair mantles. Upper illustration. Fragment of rabbit hair mantle of skirt in dark red, ornamented with concentric circles (sun symbols) in light yellow. Checker weave, with warp and woof about 8 to the inch, size 19 1/2 x 53 inches. Lower illustration. Fragment of rabbit hair mantle with selvage at the upper edge in good condition. Color dark red, open twill-twined weaving. Warp about ten to the inch, double woof about five to the inch. Size 10 1/2 x 49 inches. H. M. Trowbridge collection, upper #2745; lower #2748, Bethel, Kansas.

PLATE 149. Four fringed skirts for women's wear of rabbit hair stained dark red. The three shown in the upper portion of the plate are as found, and have not been undone. The three lengths of tape which hold each of them in place are recent additions. The fourth example extended below was bunched like those above when found. Length 39 inches. Warp 10 to the inch. H. M. Trowbridge collection, #2725; #2726; #2727 and #2749 respectively, Bethel, Kansas.

PLATE 150. Drawings showing detail of weaving.

A. Section of polychrome cloth in mixed twined weaving (appearing in 9/10 natural size in Plate 140) enlarged to show weave. c, d, e, Rabbit hair outlines of design dyed black; f, g, i, Double woof cords of vegetal fiber and rabbit hair originally dyed yellow. k, Woof cords of rabbit hair dyed red. What remains of the warp cords, h, are of vegetal fiber. Peabody Museum Collection.

B. Corner of mantle in twined weaving with fringe. Woven of rabbit hair dyed dark red. H. M. Trowbridge collection, #2788. Drawing is three-fourths size of original.

PLATE 151

A. Enlarged fragment of polychrome cloth showing method of joining two colors, the junction being covered by vertical cords of black yarn.

B. Checker woven textile of rabbit hair showing method of forming selvage. See upper specimen in Plate 141.

C. Open twill-twined weaving enlarged to show weave. The example shown in Plates 145-147 and lower photograph in Plate 148 are in this weave.

D. Simple twined weaving. This is the method used in making the body of the basket, a fragment of which appears in Plate 152. In weaving the selvage of the basket the woof cords are pressed close together.

PLATE 152. Fragment of vegetal fiber basket in simple twined weaving, body of warp about 32 to the inch, double woof about 16 to the inch. The woof of selvage about 32 to the inch. H. M. Trowbridge collection, Bethel, Kansas #2787.

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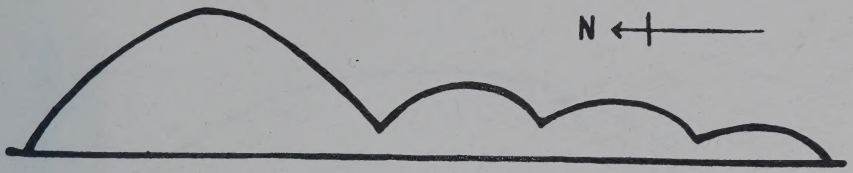
PLATE 1.--THE SPIRO MOUND DURING EXCAVATION, FROM A NORTH, NORTHEASTERLY DIRECTION

PLATE 2.--VIEW OF THE SPIRO MOUND FROM A SOUTH, SOUTHEASTERLY DIRECTION, AFTER THE SIX EXCAVATORS HAD ABANDONED THE SITE



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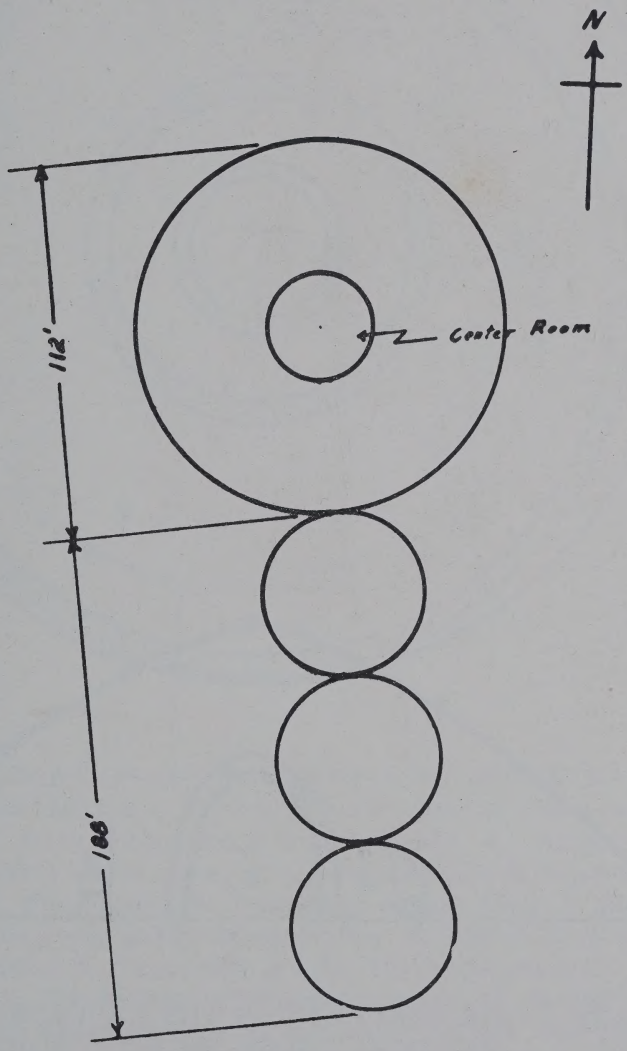


B

PLATE 3.--A. ORIGINAL OUTLINE OF THE SPIRO MOUND
B. GROUND PLAN OF THE SPIRO MOUND

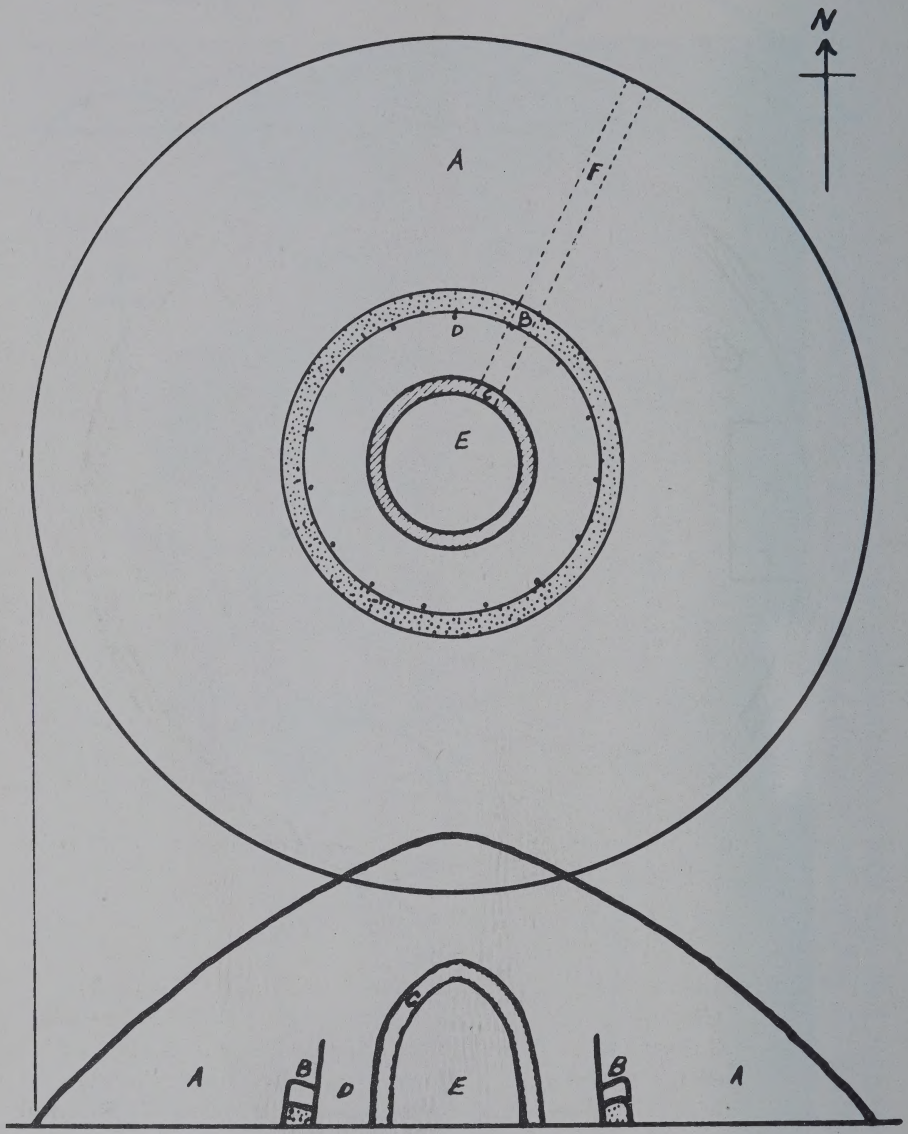


PLATE 4.--GROUND PLAN OF THE LARGE MOUND, WITH VERTICAL CROSS-SECTION SHOWN BELOW

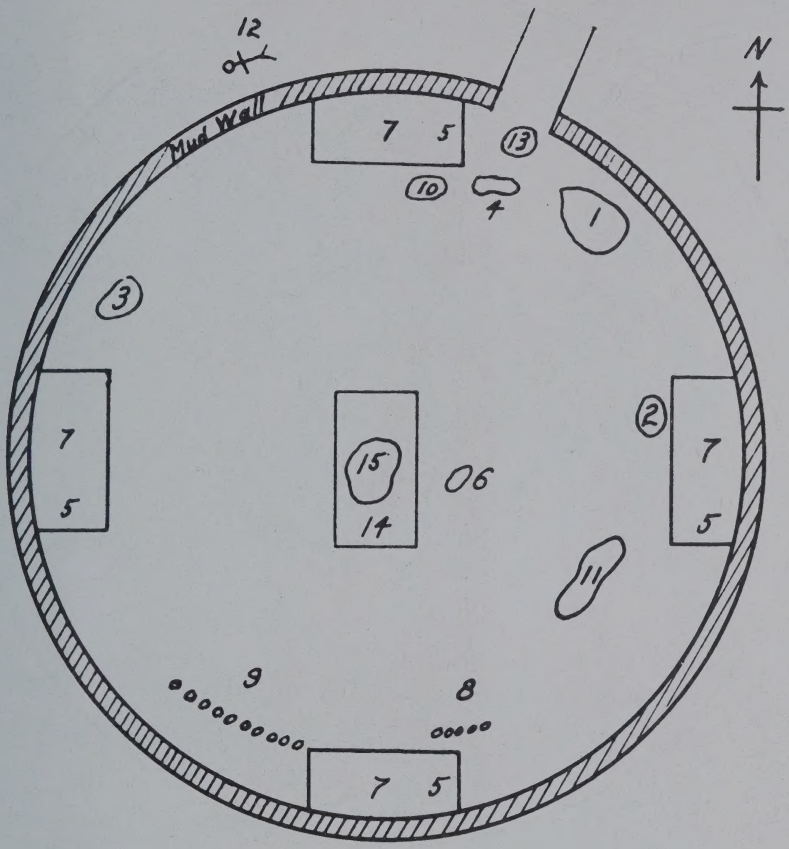


PLATE 5.--LOCATION OF OBJECTS FOUND IN CENTRAL CHAMBER 1. Thirty copper axes 2. Pearl beads 3. Basket containing human masks 4. "Alligator" effigy stone pipe (not illustrated in this report) 5. Four altars 6. Two effigy stone pipes 7. Blanket and shell beads on each altar 8. About 20 stone pipes 9. Projectile points 10. Seven maces 11. Ten baskets with sheet copper 12. Burial 13. Effigy stone pipe and water bottles 14. Pile of three blankets 15. Eight hundred pounds of shell beads on top of blankets

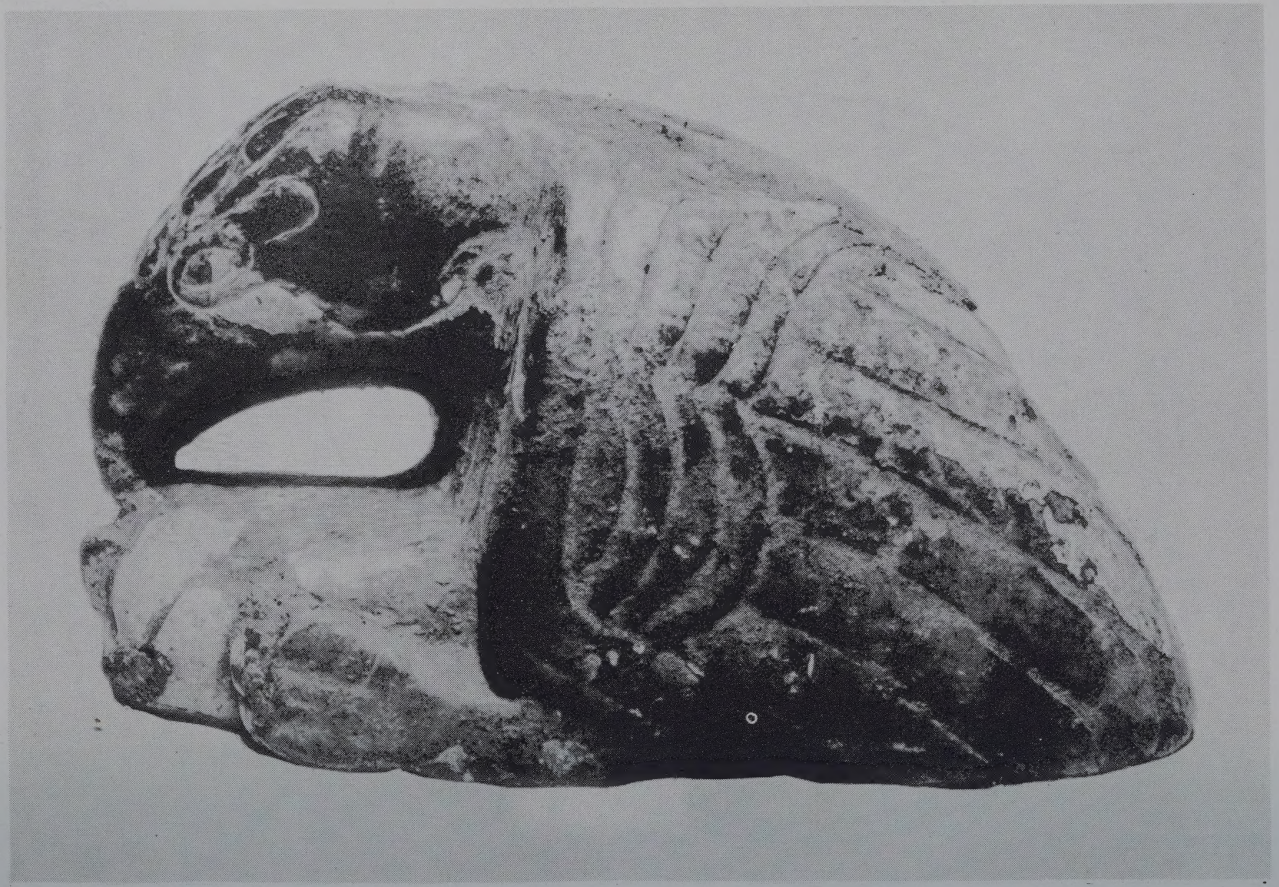


PLATE 6.--EAGLE AND WOMAN EFFIGY STONE PIPE (Length at base 8 1/2 in.)

PLATE 7.--MOTHER AND CHILD EFFIGY STONE PIPE

PLATE 8.--EFFIGY STONE PIPE, RIGHT AND LEFT SIDES
(Height 6 in.)

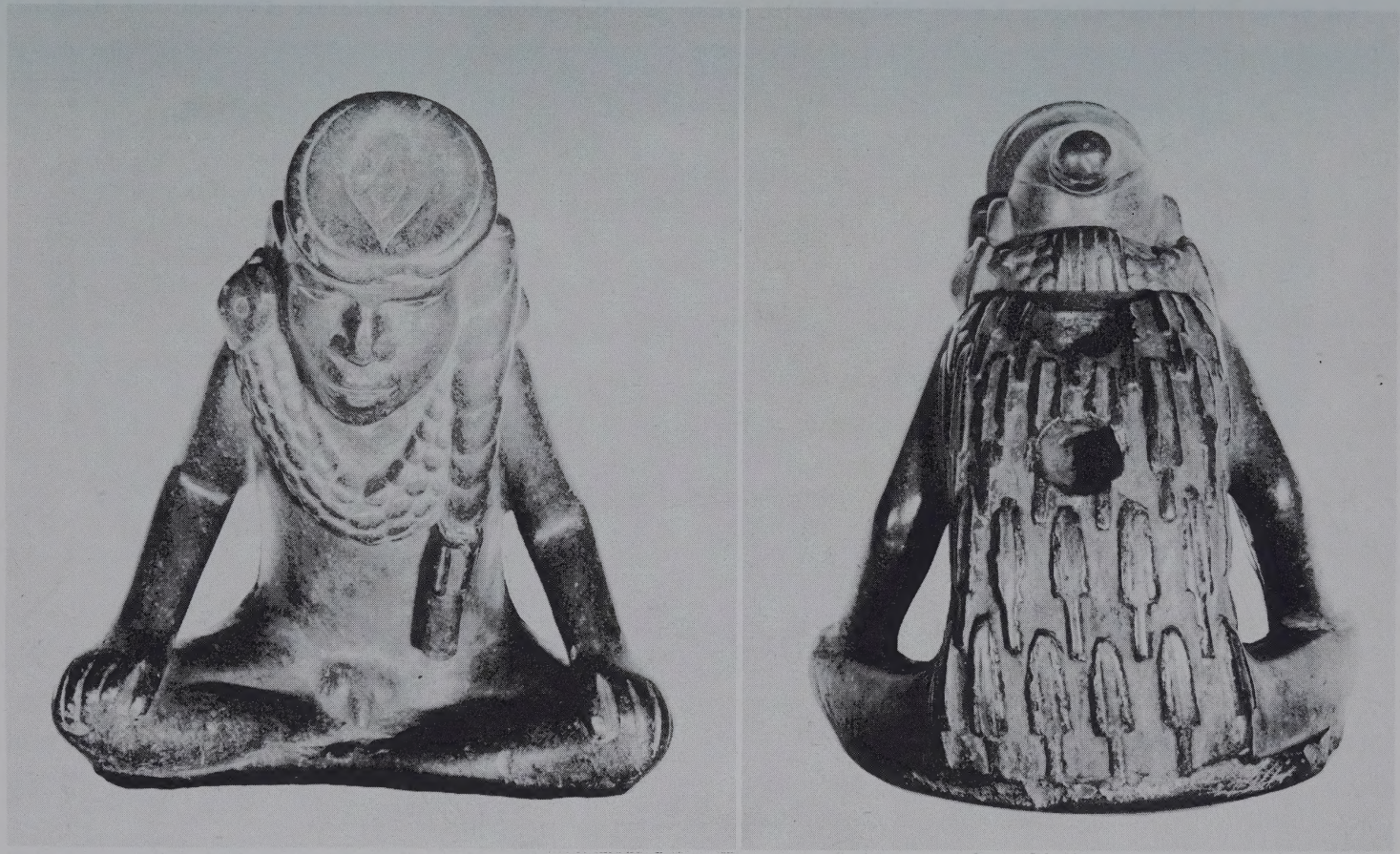


PLATE 9.--HUMAN EFFIGY "BIG BOY" STONE PIPE, FRONT AND BACK VIEWS (Height 10 3/4 in.)

PLATE 10.--HUMAN EFFIGY "BIG BOY" STONE PIPE, RIGHT AND LEFT VIEWS (Same as Plate 9)

PLATE 11.--HUMAN SACRIFICE EFFIGY CLAY PIPE
(Height 9 3/4 in.)

PLATE 12.--HUMAN SACRIFICE EFFIGY CLAY PIPE, REAR VIEW
(Same as Plate 11.)

PLATE 13.--STONE PIPES IN EFFIGY OF HUMAN FIGURE HOLDING ENTIRE BICONICAL PIPE
(Height of each 5 1/2 in.)

PLATE 14.--STONE PIPE IN EFFIGY OF SEATED HUMAN FIGURE HOLDING A BICONICAL PIPE

PLATE 15.--STONE PIPE IN EFFIGY OF A WOMAN WITH MORTAR AND EAR OF CORN (Height 9 7/8 in.)

PLATE 16.--EFFIGY PIPES OF STONE

A. Human figure with two heads, one broken off (Height 4 in.)

B. Composite animal-bird figure (Length 2 in. at base)

PLATE 17.--EFFIGY PIPES OF STONE AND CLAY

A. Two views of human effigy made of limestone (Height 2 13/16 in.)
B. Animal head on prow of clay pipe (Height 3 1/2 in.)
C. Animal figures decorating clay pipe (Height 2 1/2 in.)
D. Jaguar figure made of rock crystal (Length 3 1/2 in.)

PLATE 18.--EFFIGY PIPES OF STONE AND CLAY

A. Turtle or serpent head on prow of stone pipe (Length 5 1/8 in.)

B. Two frog effigy clay pipes (Heights 3 1/4 and 4 1/4 in.)

PLATE 19.--OWL EFFIGY STONE PIPE

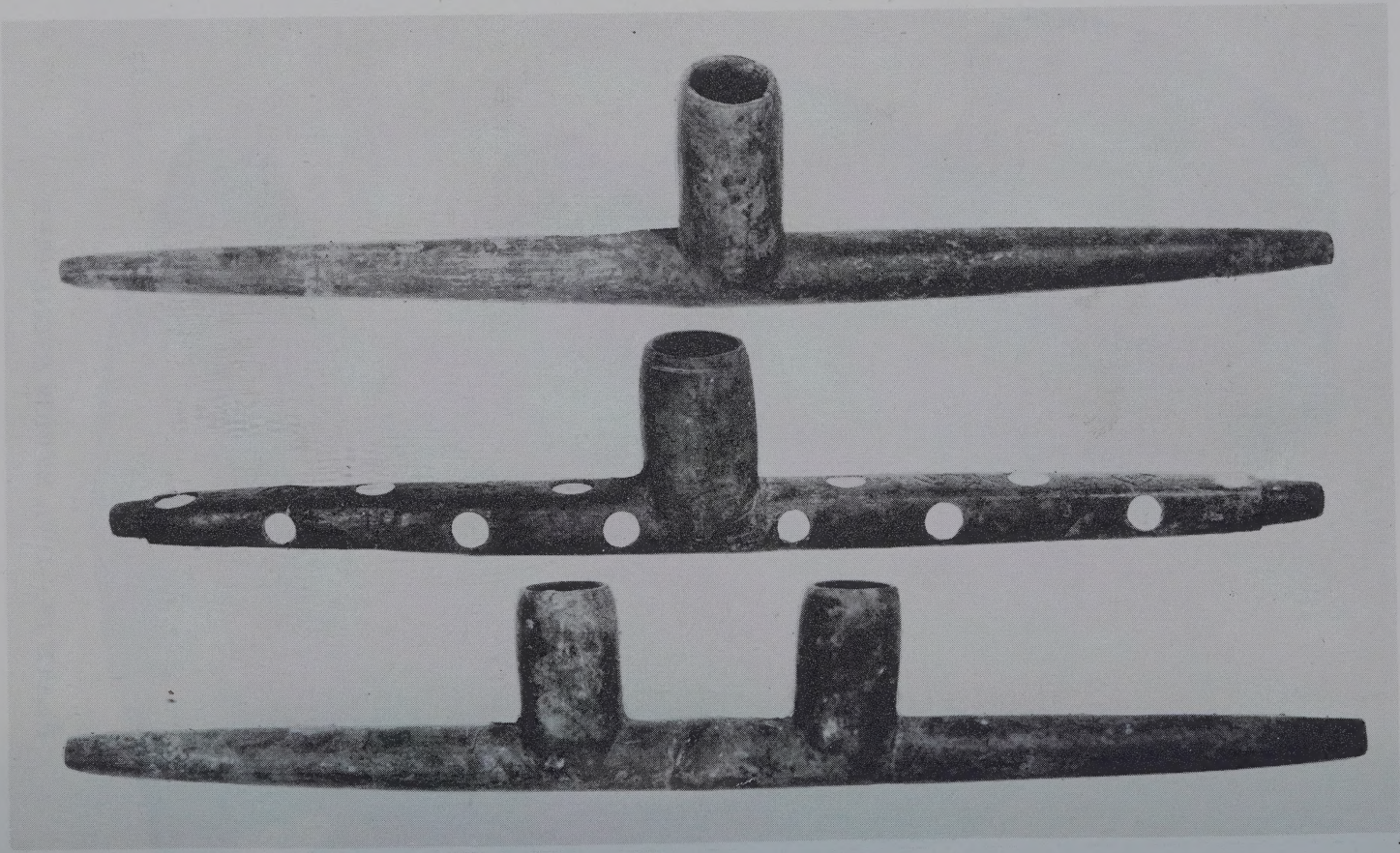


PLATE 20.--LARGE "T" PIPES OF STONE (Lengths 20 1/4, 20 and 20 1/2 ins.)

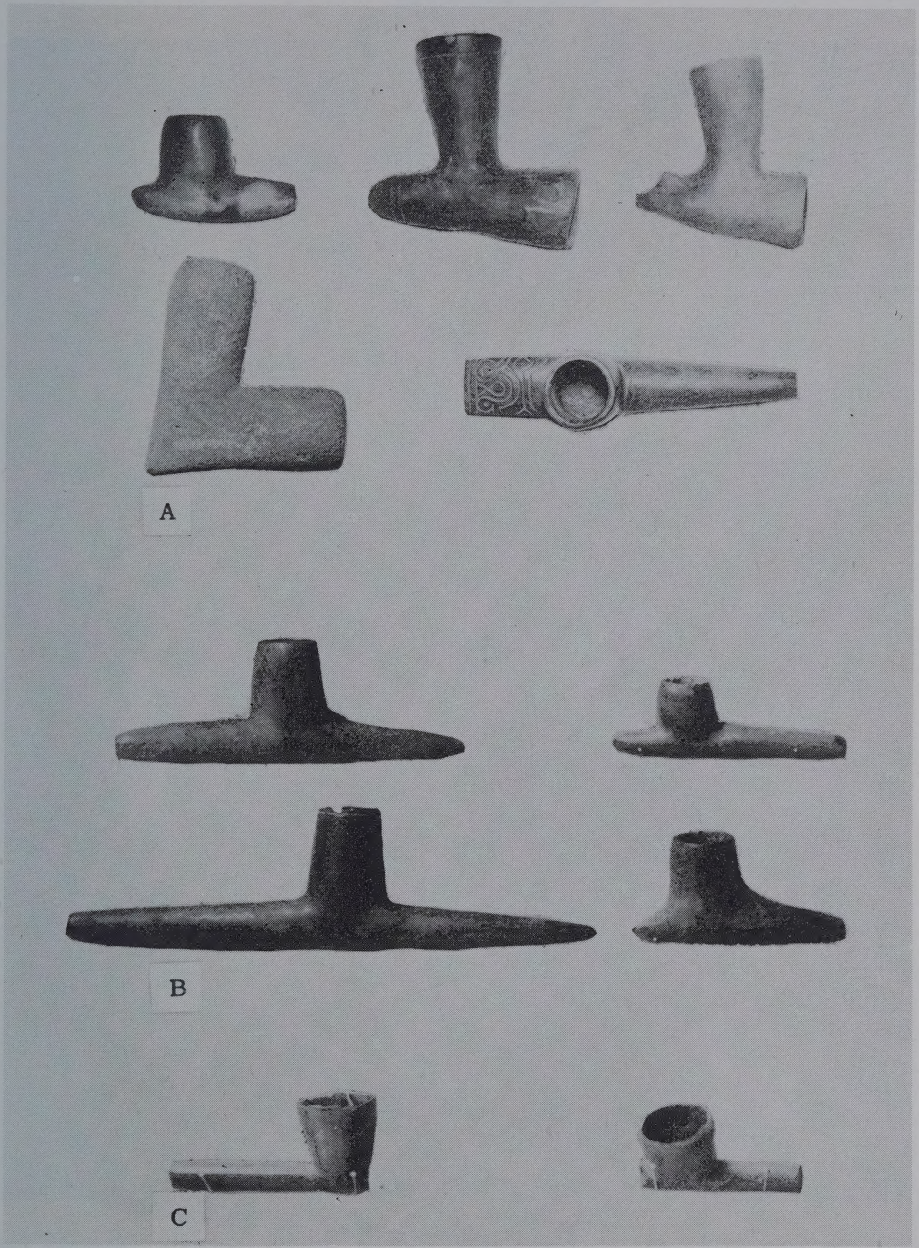


PLATE 21.--PIPES OF STONE AND CLAY

A. Top row clay, remainder stone (Greatest length 7 1/4 in.)
B. Stone pipes (Longest 11 1/2 in.)
C. Very small fragmentary "T" pipes of clay (Longest 2 3/16 in.)

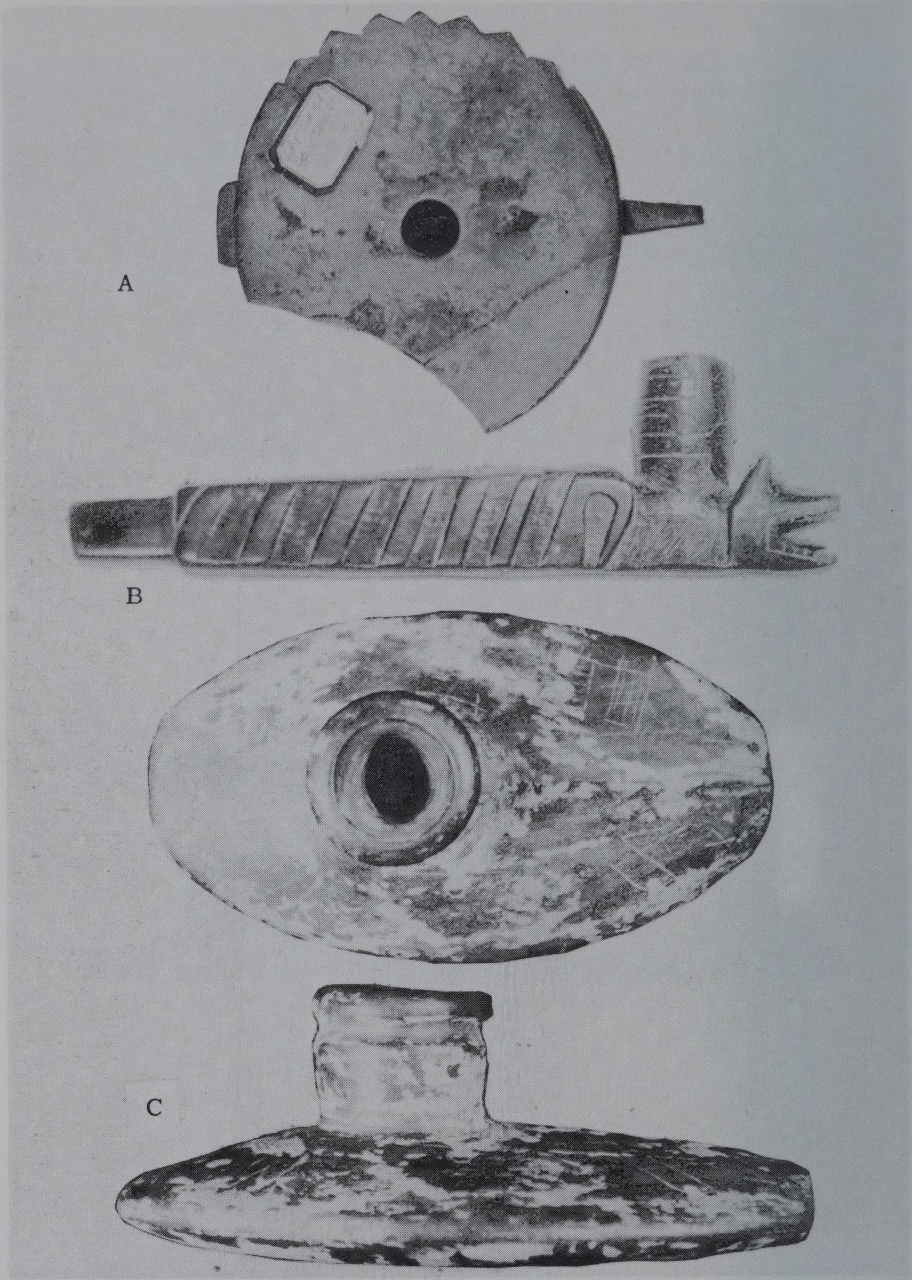


PLATE 22.--STONE PIPES POSSIBLY INTRUSIVE IN THE MOUND

A. Catlinite disk-bowl (Width of disk approximately 3 1/2 in.)
B. Catlinite pipe with canine head on prow (Length 6 15/16 in.)
C. Stone platform pipe two views (Length approximately 6 in.)

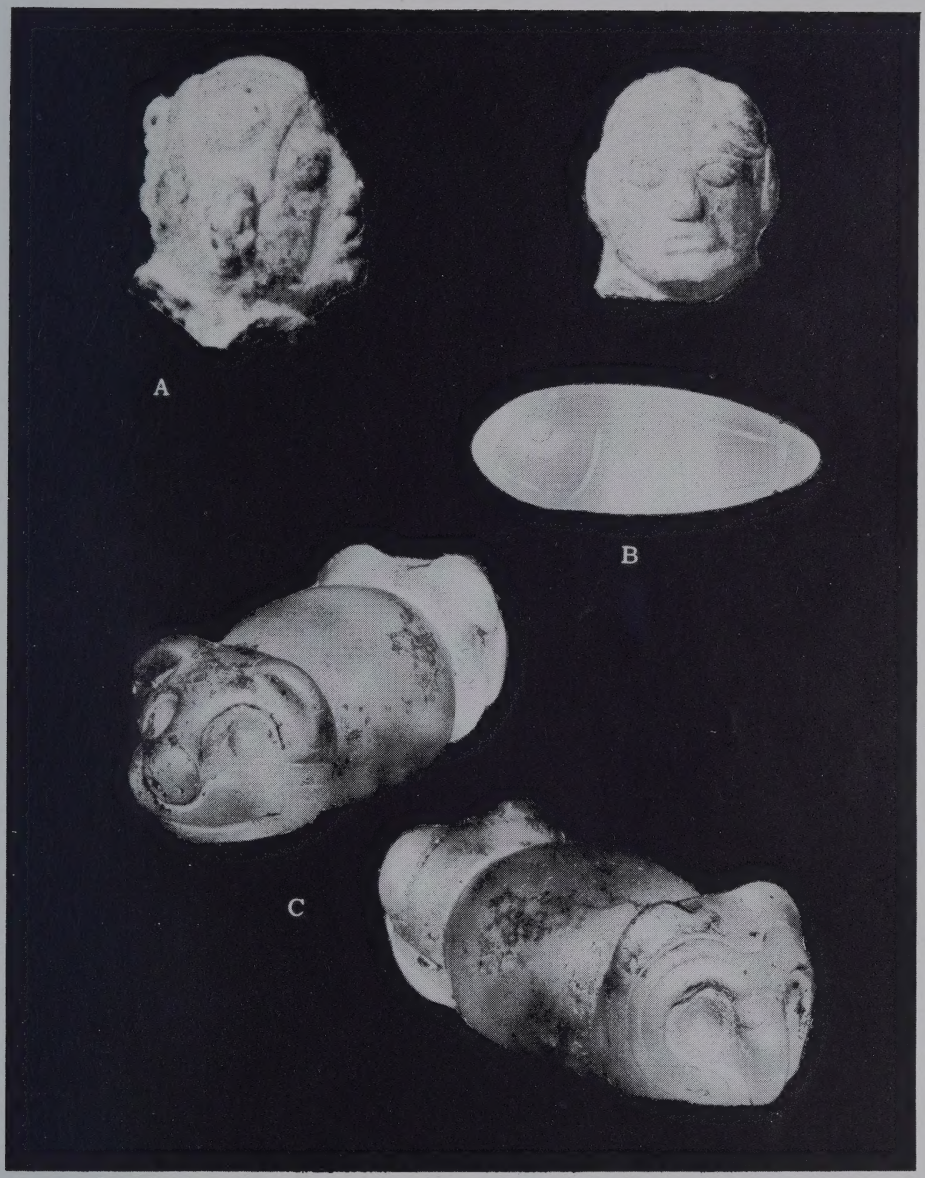


PLATE 23.--OBJECTS OF ROCK CRYSTAL

A. Side and front views of human effigy head, broken at neck (Height 2 in.)
B. Fish effigy plummet
C. Two views of double headed animal, owl and wildcat, effigy boatstone (Length 3 1/2 in.)

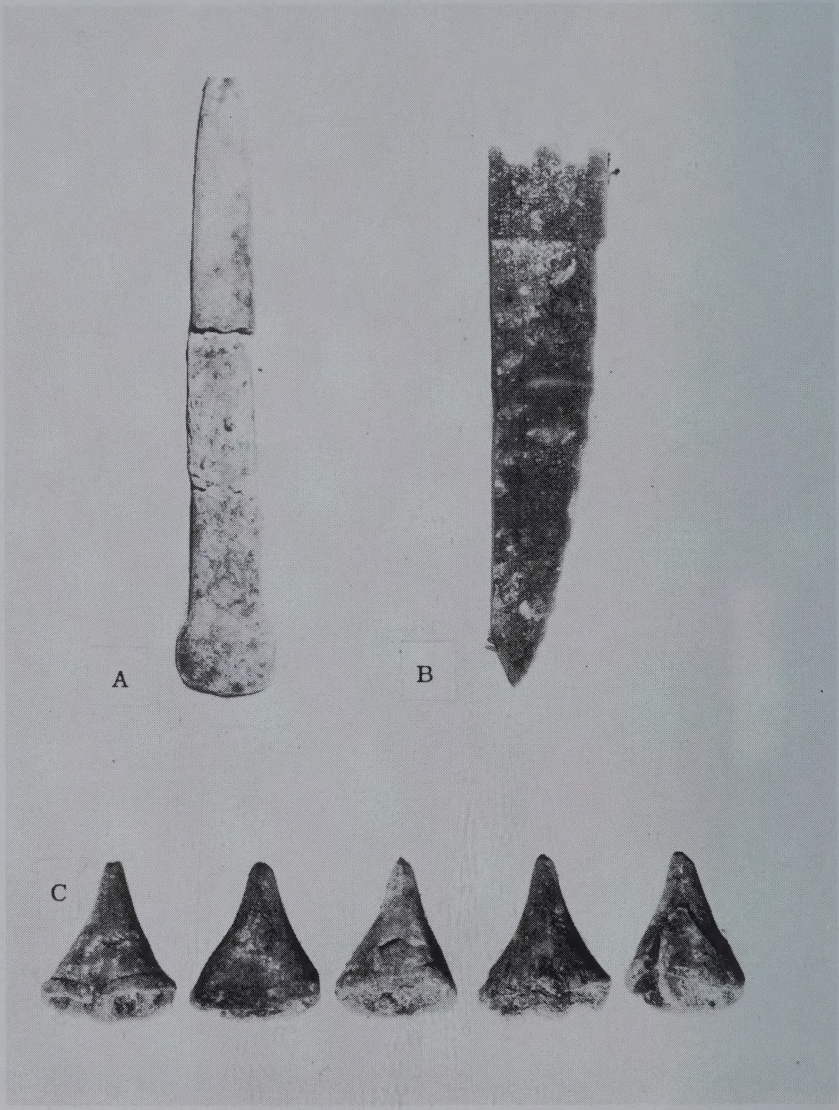


PLATE 24.--OBJECTS OF BONE AND WOOD

A. Bone Spatula
B. Wooden Blade
C. Effigy shark teeth made of cedar wood

PLATE 25.--HUMAN EFFIGY OF RED CEDAR (Height 19 1/2 in.)

PLATE 26.--HUMAN EFFIGIES OF RED CEDAR (Heights 12 1/2 and 11 1/4 in.)

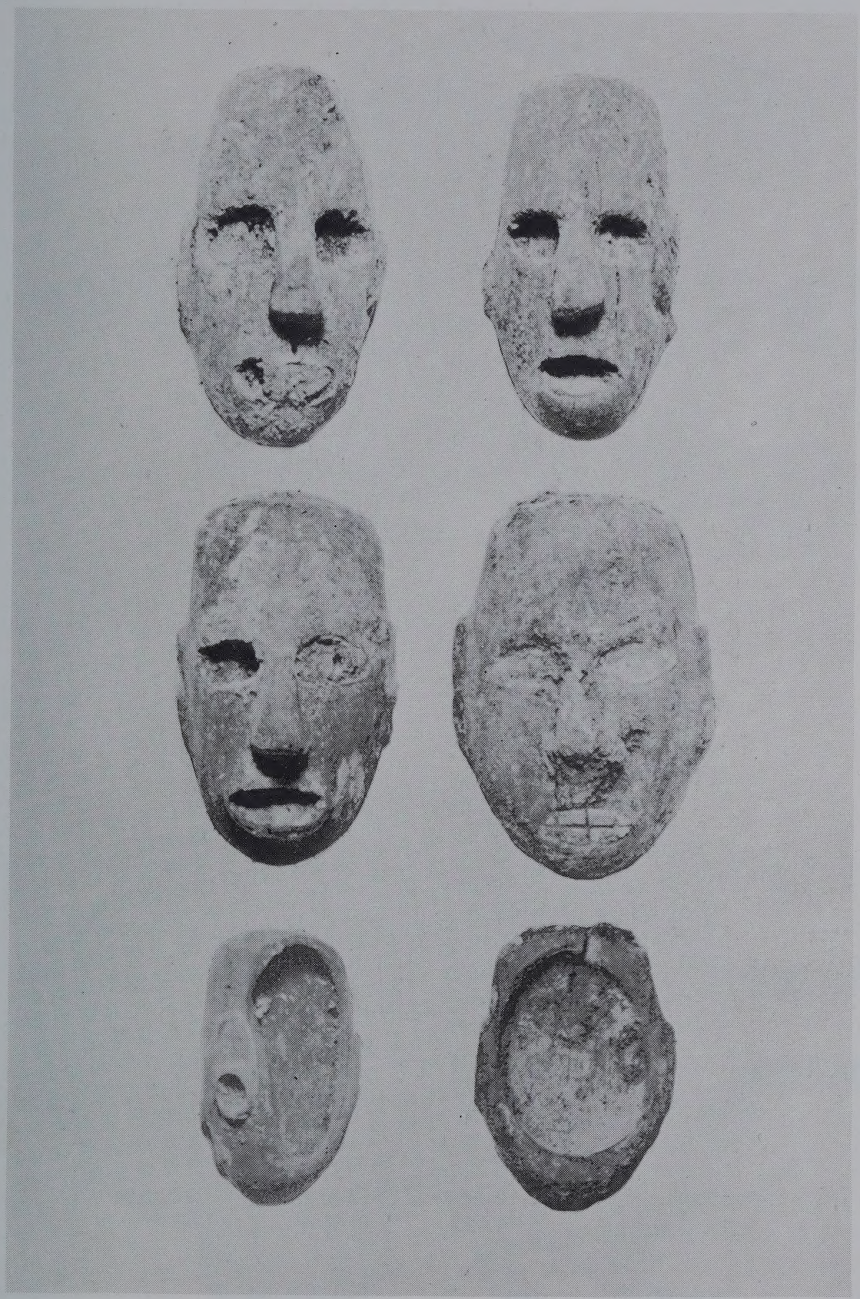


PLATE 27.--FOUR HUMAN EFFIGY MASKS OF RED CEDAR (Height of upper left 2 7/16 in.) Bottom two are reverse sides of the two above

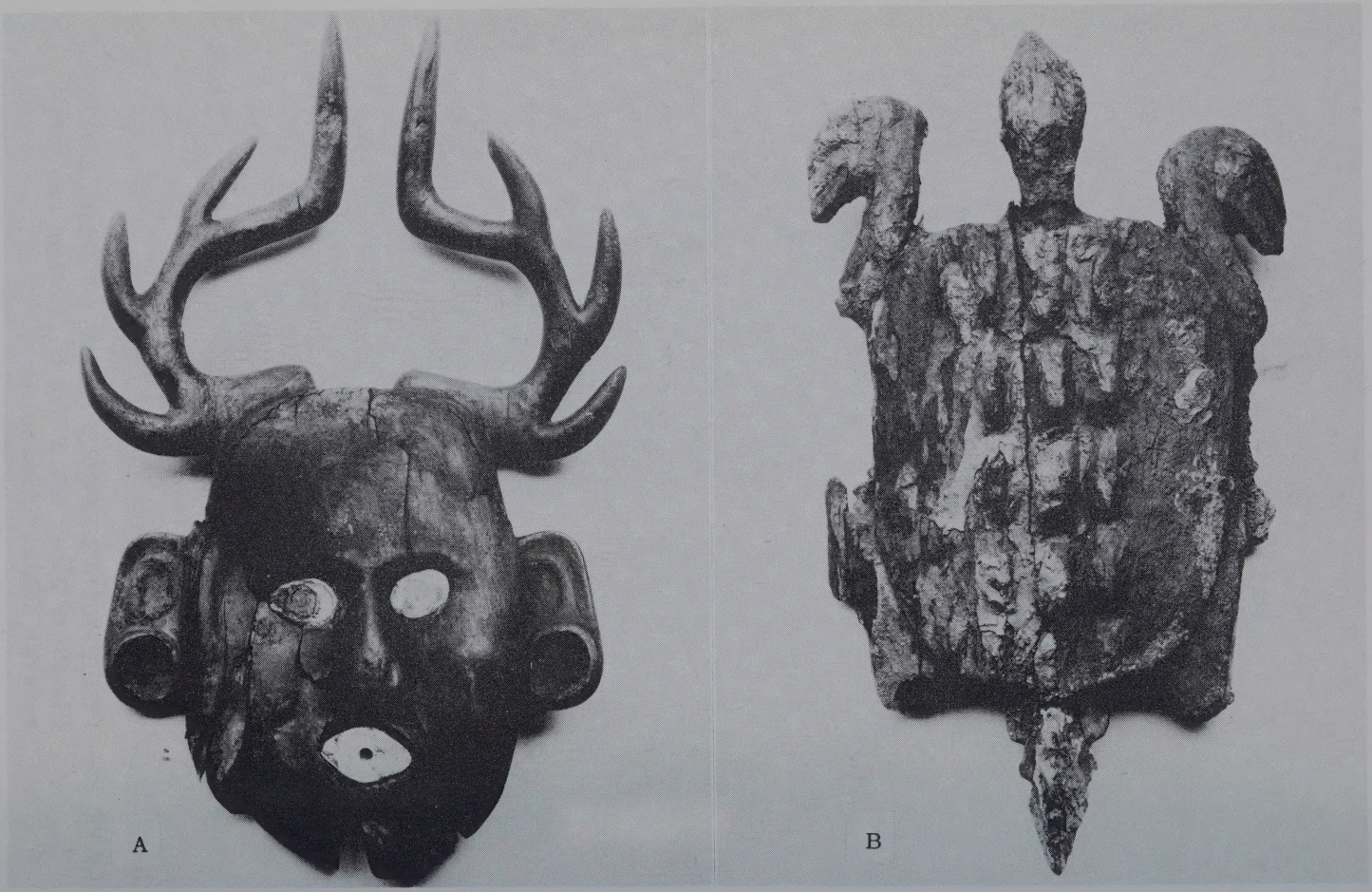


PLATE 28.--RED CEDAR MASK AND RATTLE

A. Antlered mask with shell inlay (Height 11 3/8 in.)
B. Turtle effigy rattle (Length 6 7/8 in.)

PLATE 29.--EFFIGY HANDLES FROM CEDAR BOWLS
Top--woodduck head effigy inlaid with mother-of-pearl;
Bottom--cat-like figure (Length 6 in.)

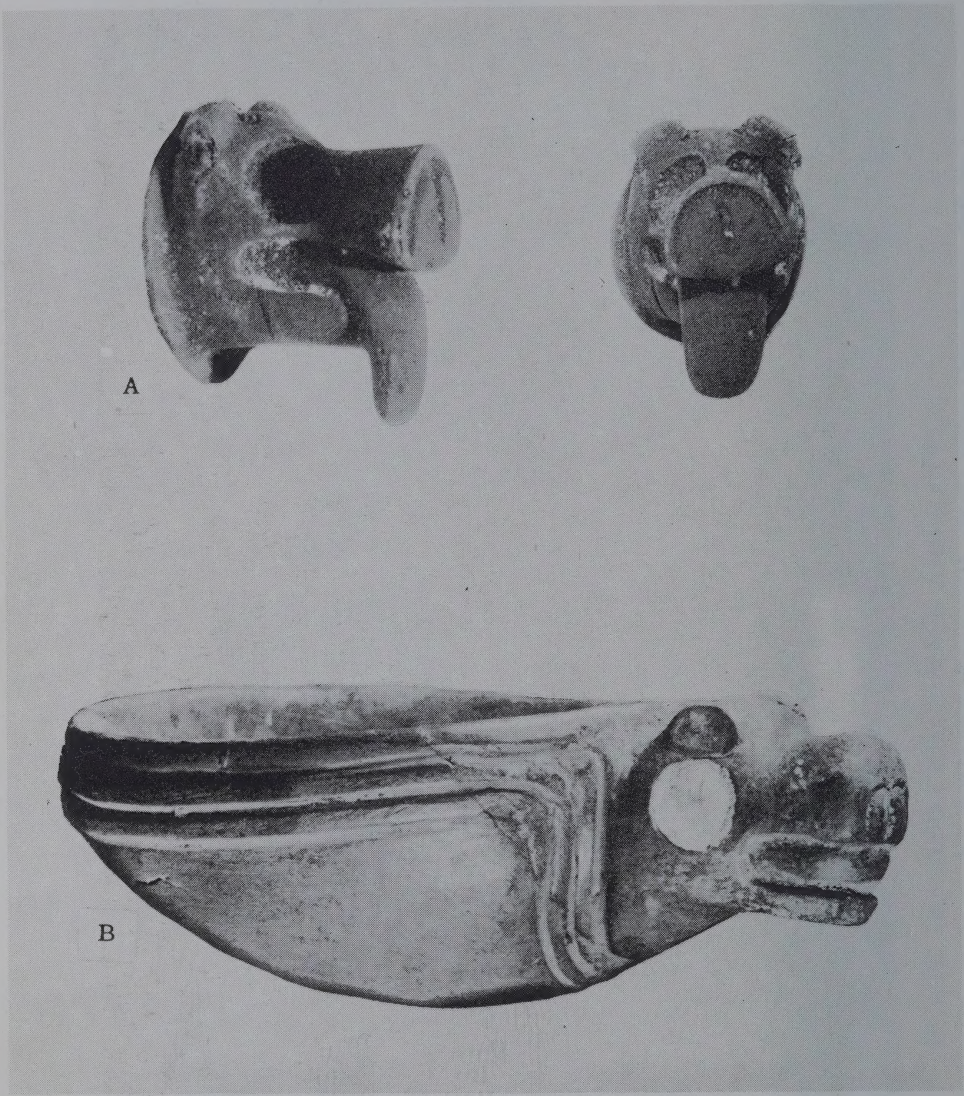


PLATE 30.--CEDAR EFFIGIES AND STONE BOWL

A. Two canine effigies (Diameter at base 2 3/4 in.)
B. Animal effigy stone bowl with shell inlay

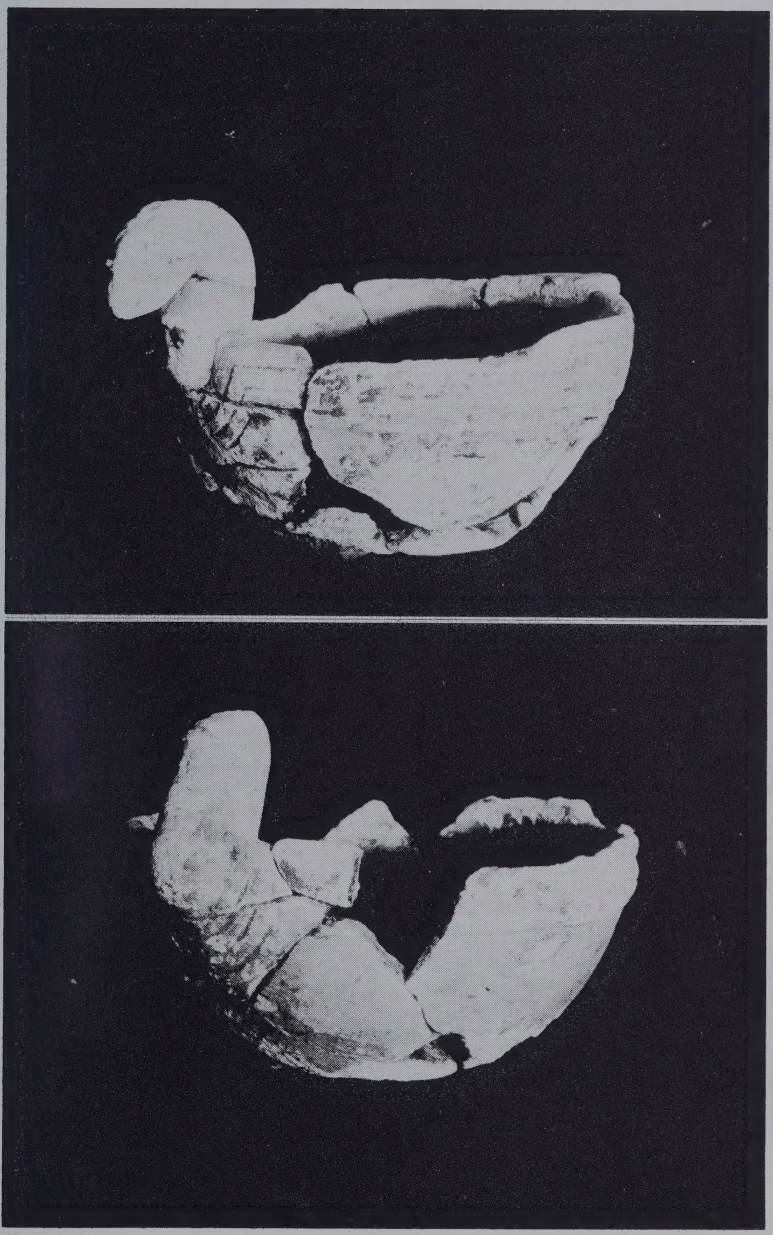


PLATE 31.--EFFIGY FLANGE STONE BOWLS
Upper flange is probably animal effigy; lower is a human effigy head flange (Outside diameter each 7 1/4 in.)

A

B

PLATE 32.--POTTERY VESSELS

A. (Upper left, height 5 3/4 in.; diameter at rim 8 3/8 in.; Upper right, height at rim 3 1/2 in.; greatest width 7 3/4 in.; Lower left, height 3 1/2 in.; diameter at rim 4 1/2 in.; Lower right, height 5 3/4 in.; diameter 9 3/4 in.)

B. (Height vessel on right 3 1/2 in.)

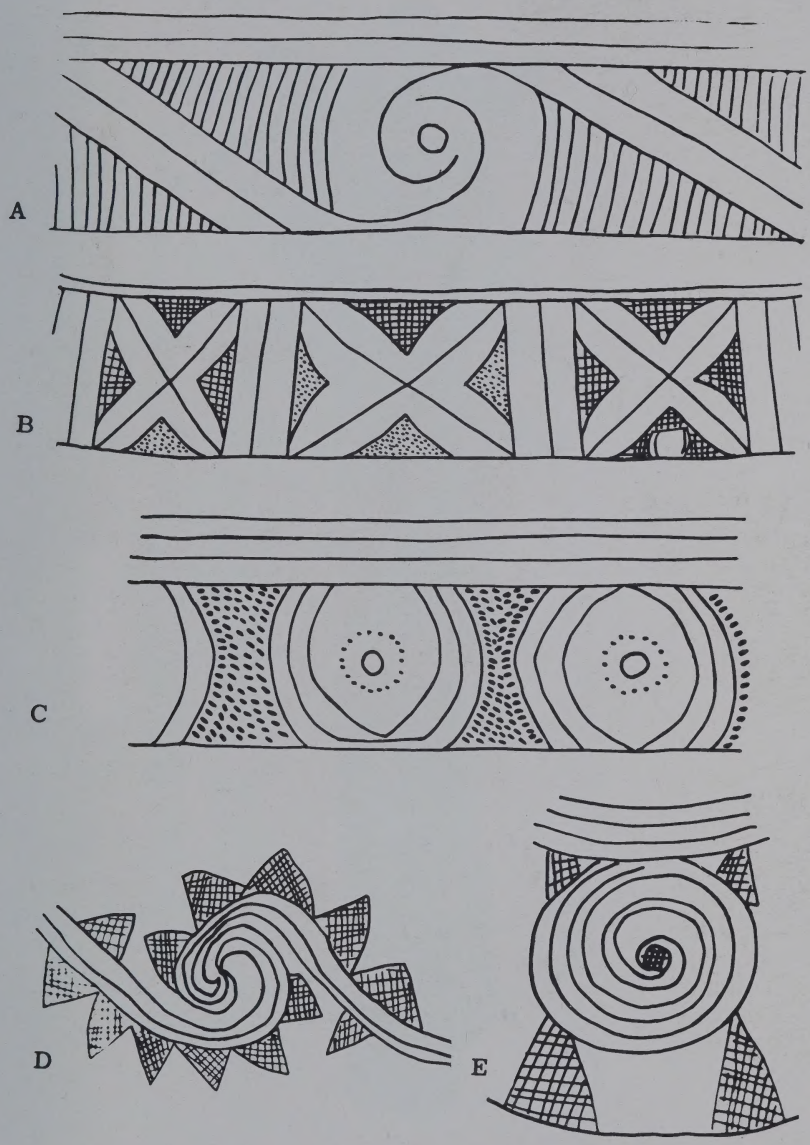


PLATE 33.--DESIGNS ON POTTERY VESSELS

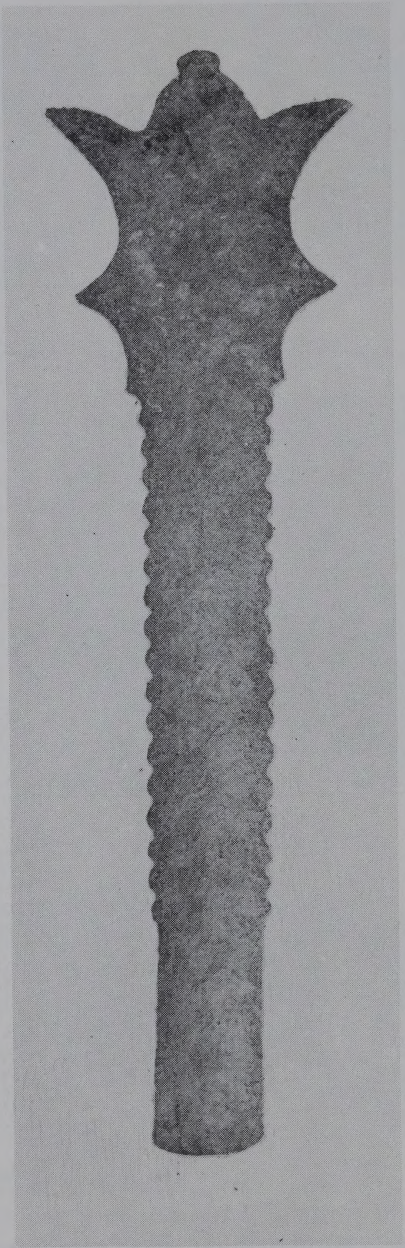


PLATE 34.--CHIPPED STONE MACE (Length 20 in.)

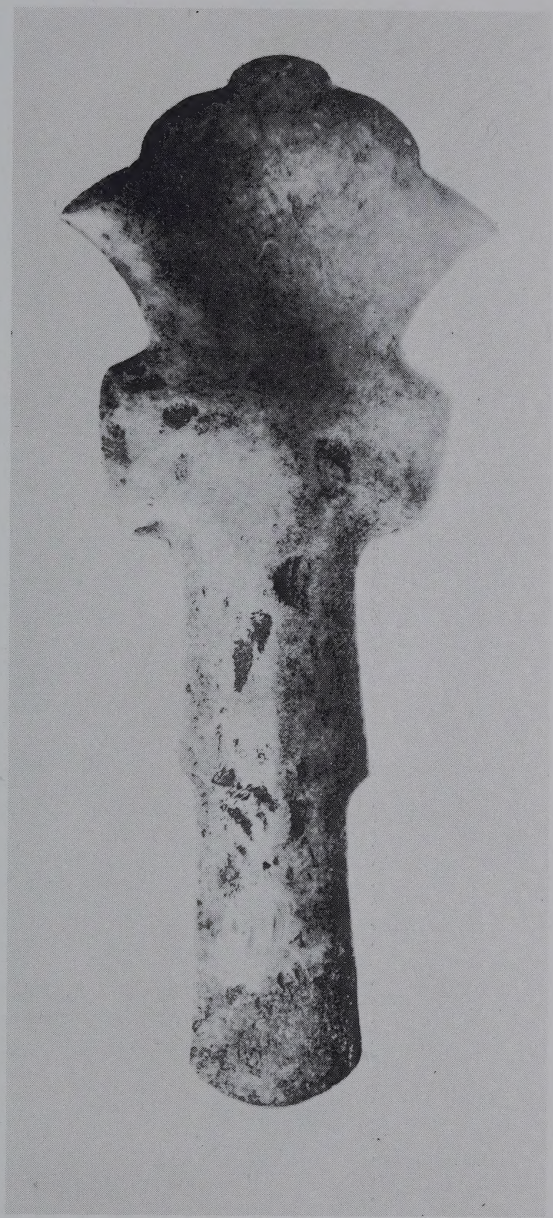


PLATE 35.--CHIPPED STONE MACE, GROUND AND POLISHED
(Length 13 3/8 in.)

PLATE 36.--CHIPPED STONE MACE, GROUND AND POLISHED
(Length 13 3/4 in.)

PLATE 37.--CHIPPED STONE MACE, GROUND AND POLISHED
(Length 15 in.)

PLATE 38.--CHIPPED STONE MACE, GROUND AND POLISHED
(Length 15 3/4 in.)

PLATE 39.--CHIPPED STONE MACE (Length 14 1/16 in.)

PLATE 40.--CHIPPED STONE MACE (Length 13 7/8 in.)

PLATE 41.--CHIPPED STONE MACE (Length 10 7/8 in.)

PLATE 42.--CHIPPED STONE MACE (Length 6 1/8 in.)

PLATE 43.--CHIPPED STONE MACES (Left to right, lengths 16 3/8, 12 1/2, 16 1/4 in.)

PLATE 44.--CHIPPED STONE MACE AND BLADES

A. (Mace at left, length 11 in.; Stemmed blade, right, length 7 in., width, 3 1/4 in., greatest thickness, 5/16 in.)

B. (Lower blade, 11 1/2 in. long)

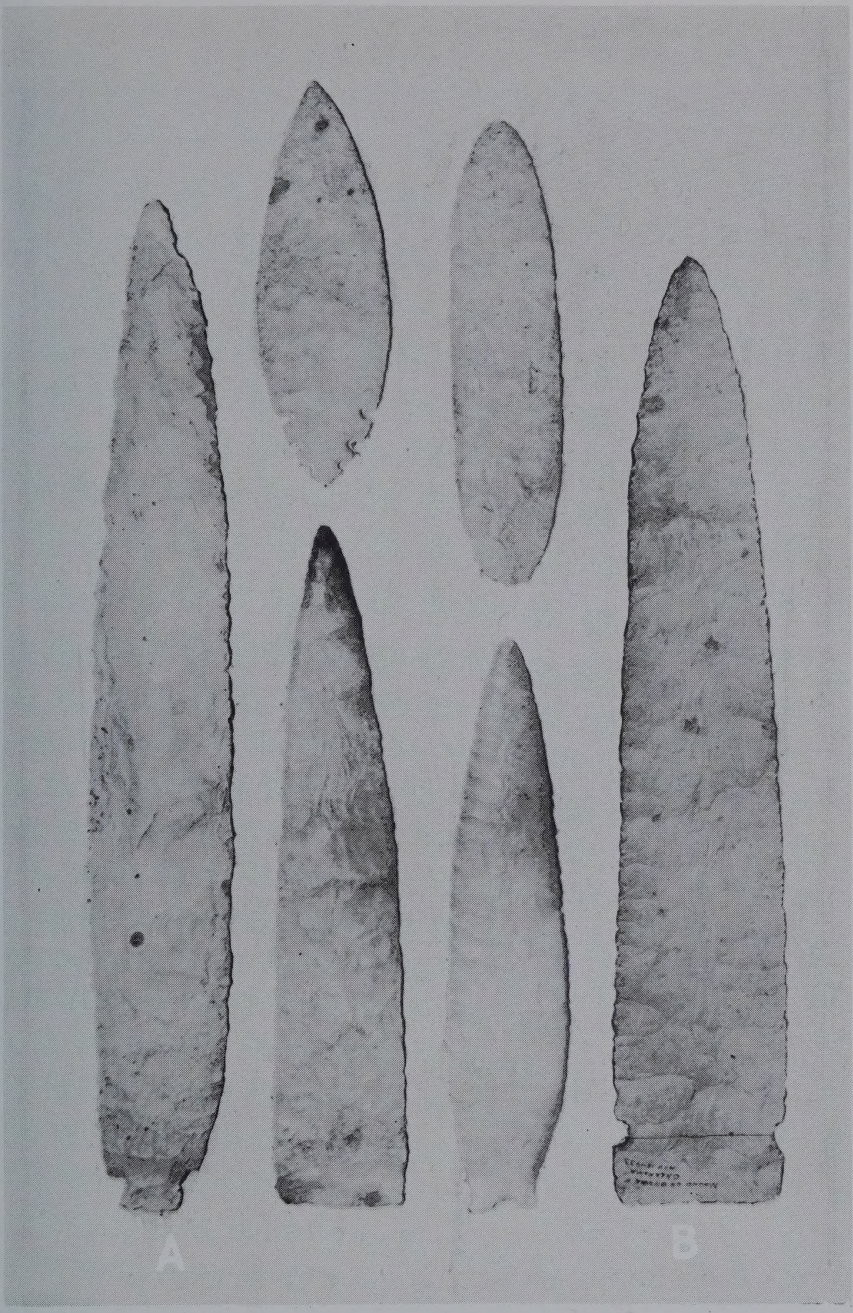


PLATE 45.--CHIPPED STONE BLADES

A. (Longest 21 in.)

B. (Length 17 1/4 in.)

PLATE 46.--CHIPPED STONE BLADES (RESTORED) (Longest approximately 22 in.)

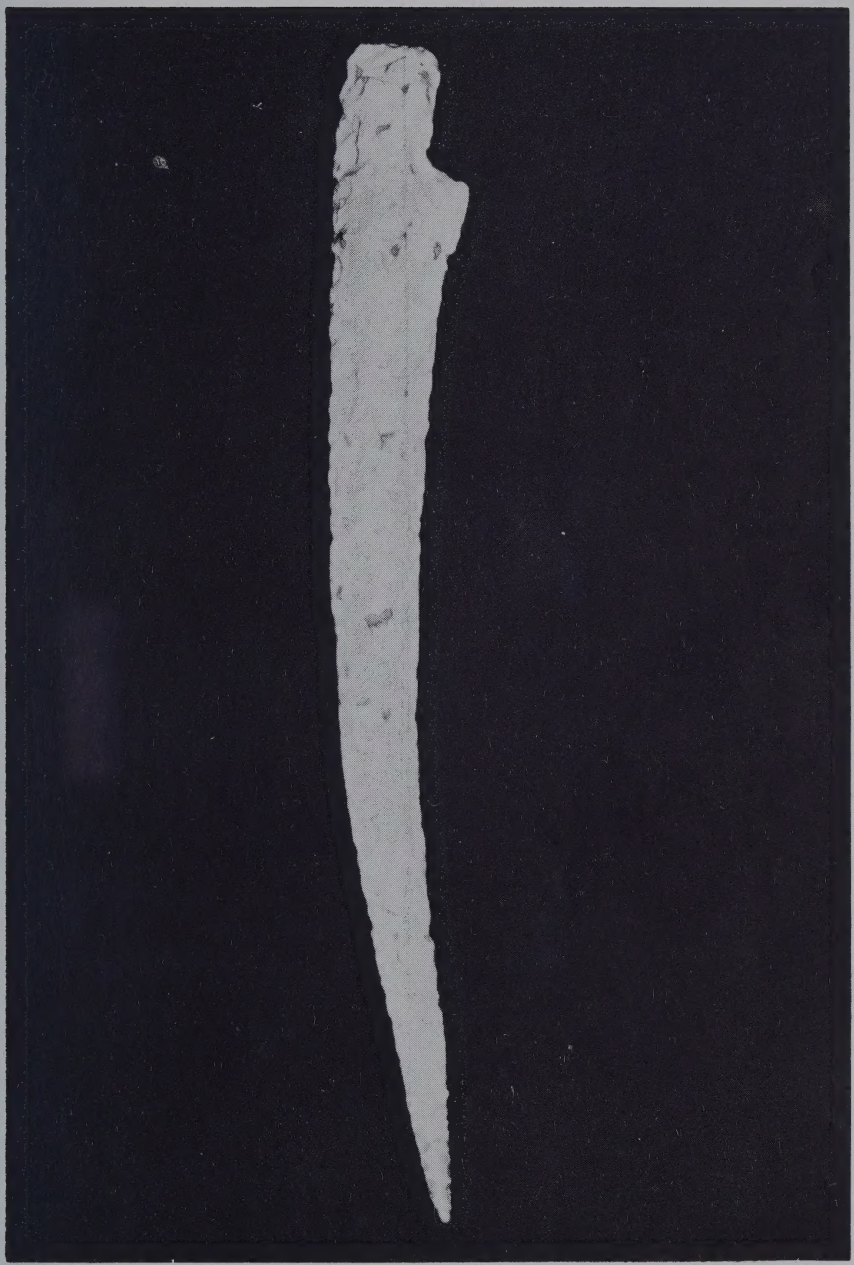


PLATE 47.--CURVED CHIPPED STONE BLADE (Length 7 1/2 in.)

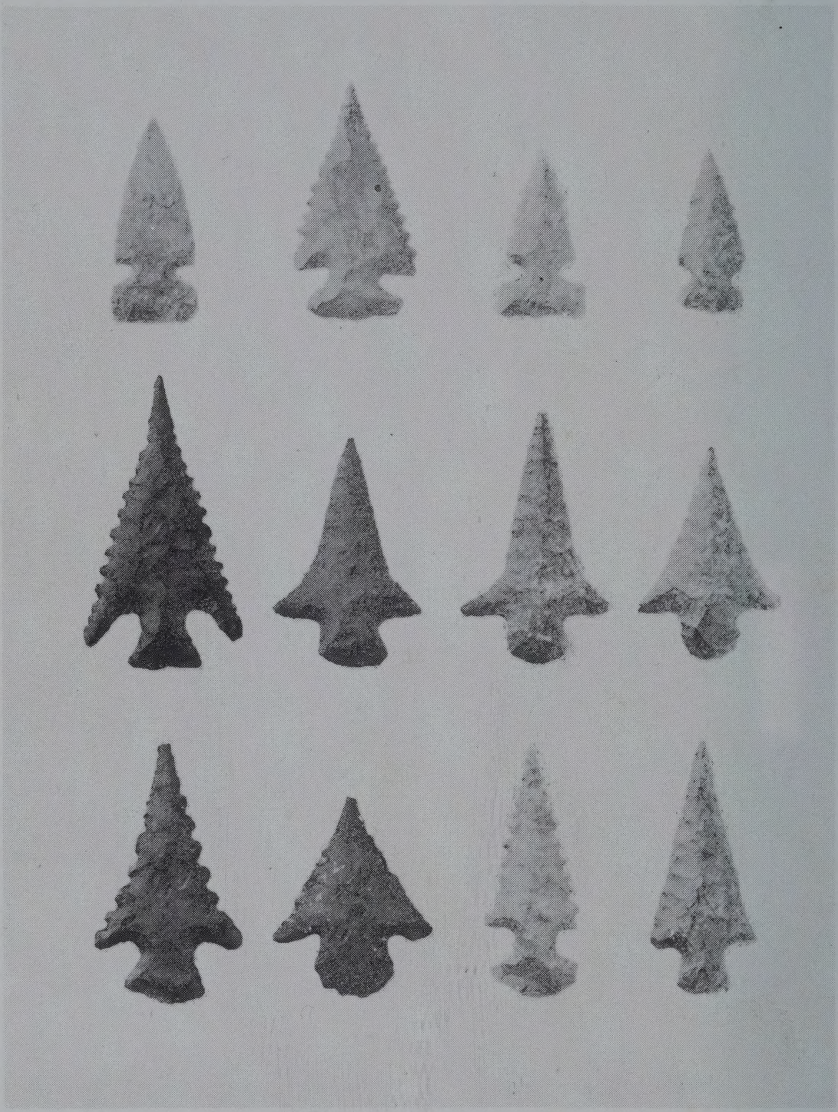


PLATE 48.--SMALL PROJECTILE POINTS (Length of largest point 1 7/16 in.)

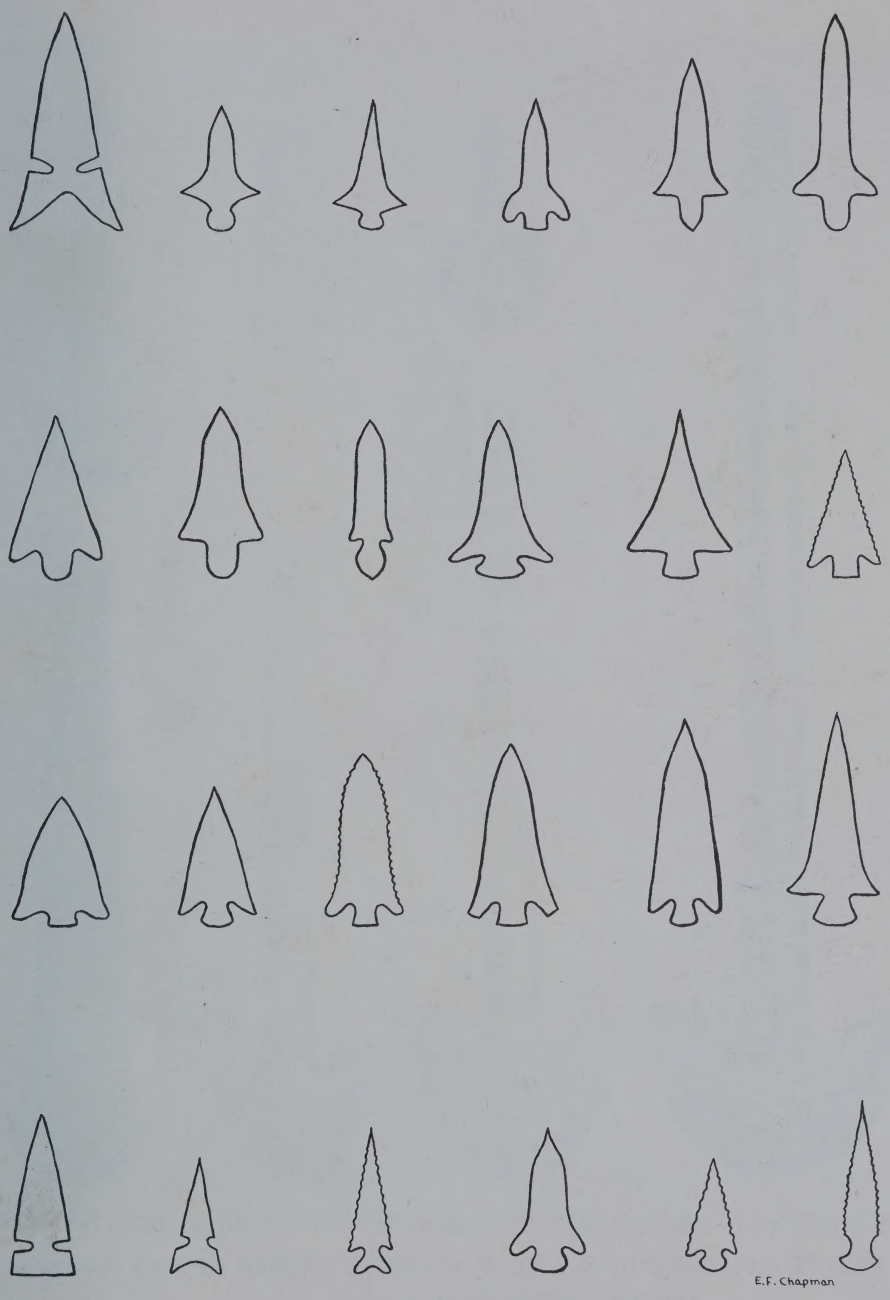


PLATE 49.--OUTLINE DRAWINGS OF SMALL PROJECTILE POINTS

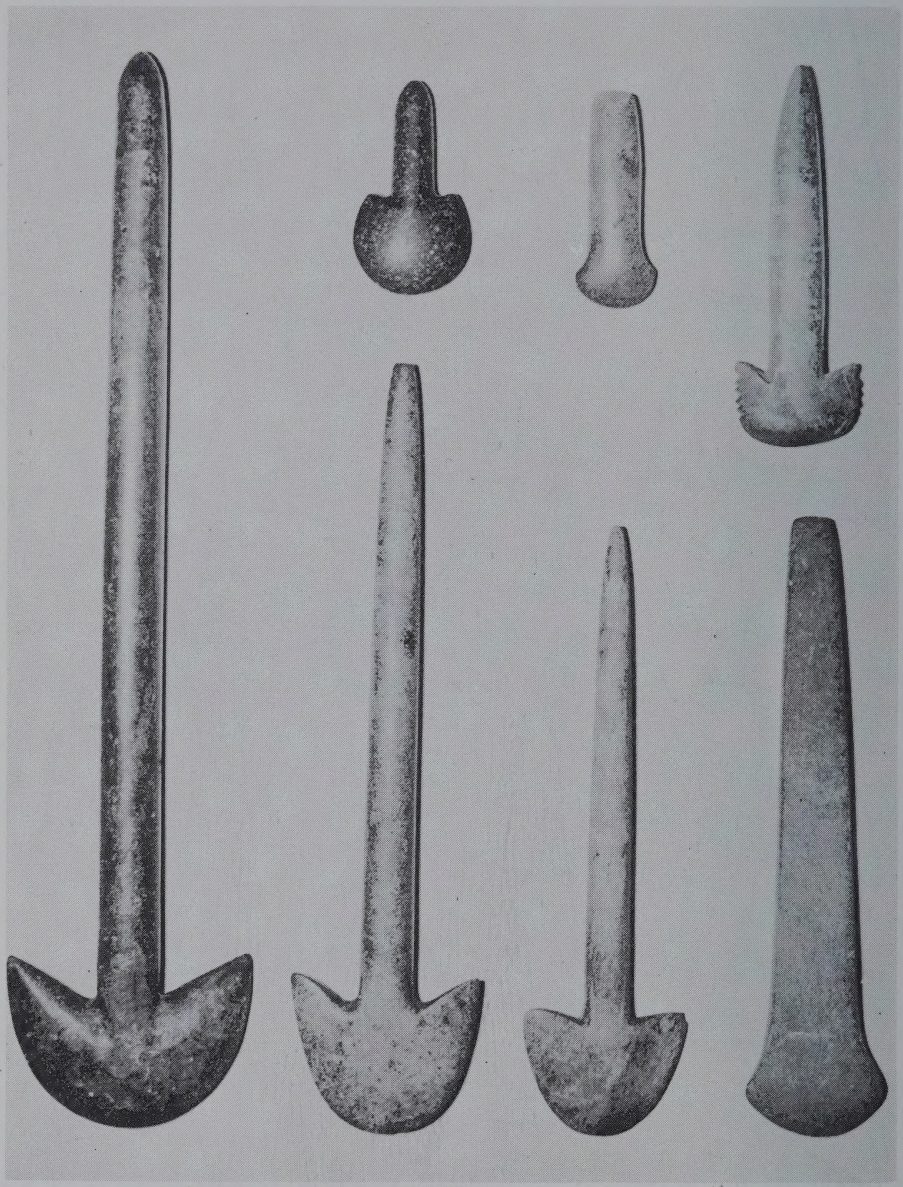


PLATE 50.--GROUND AND POLISHED STONE SPUDS (Longest approximately 23 in.)

PLATE 51.--GROUND AND POLISHED CHERT SPUDS (Longest 8 in.)

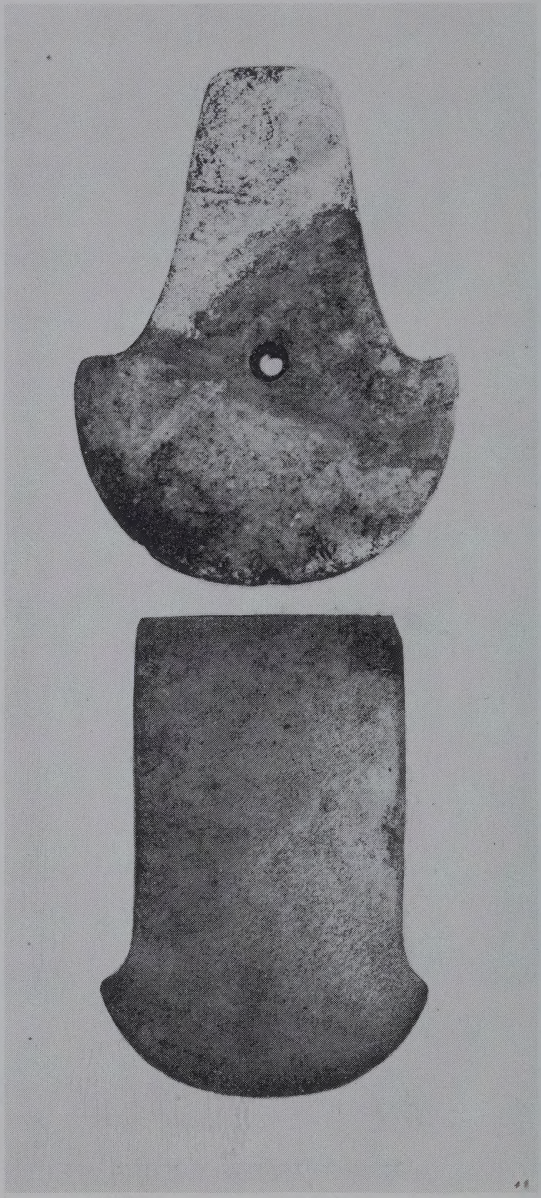


PLATE 52.--SPUD-SHAPED IMPLEMENTS OF STONE (Lengths 9 3/4 and 9 1/2 in.)

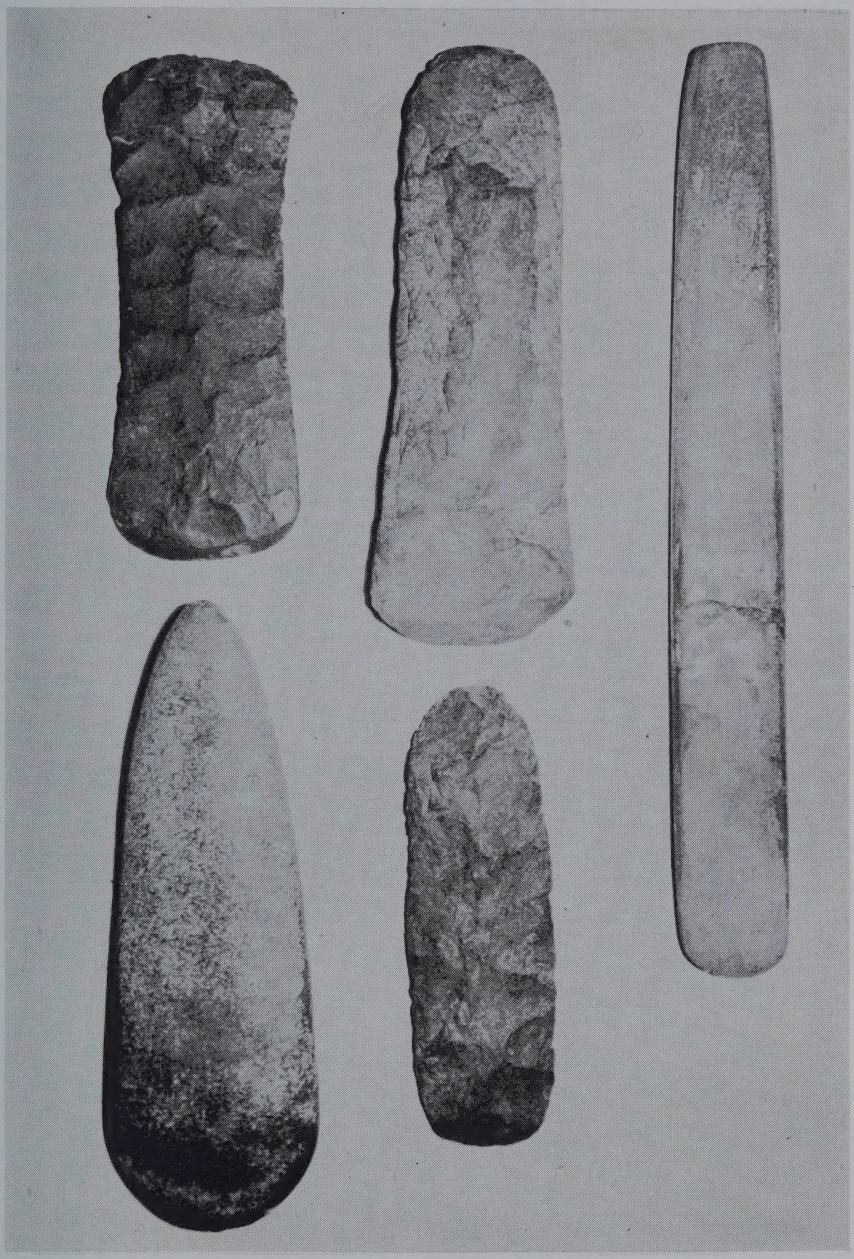


PLATE 53.--STONE CELTS AND HOES (Longest 19 1/4 in.)

PLATE 54.--CACHE OF HAFTED COPPER AXES LYING UPON MATTING The projecting wooden handle is almost 24 in. long

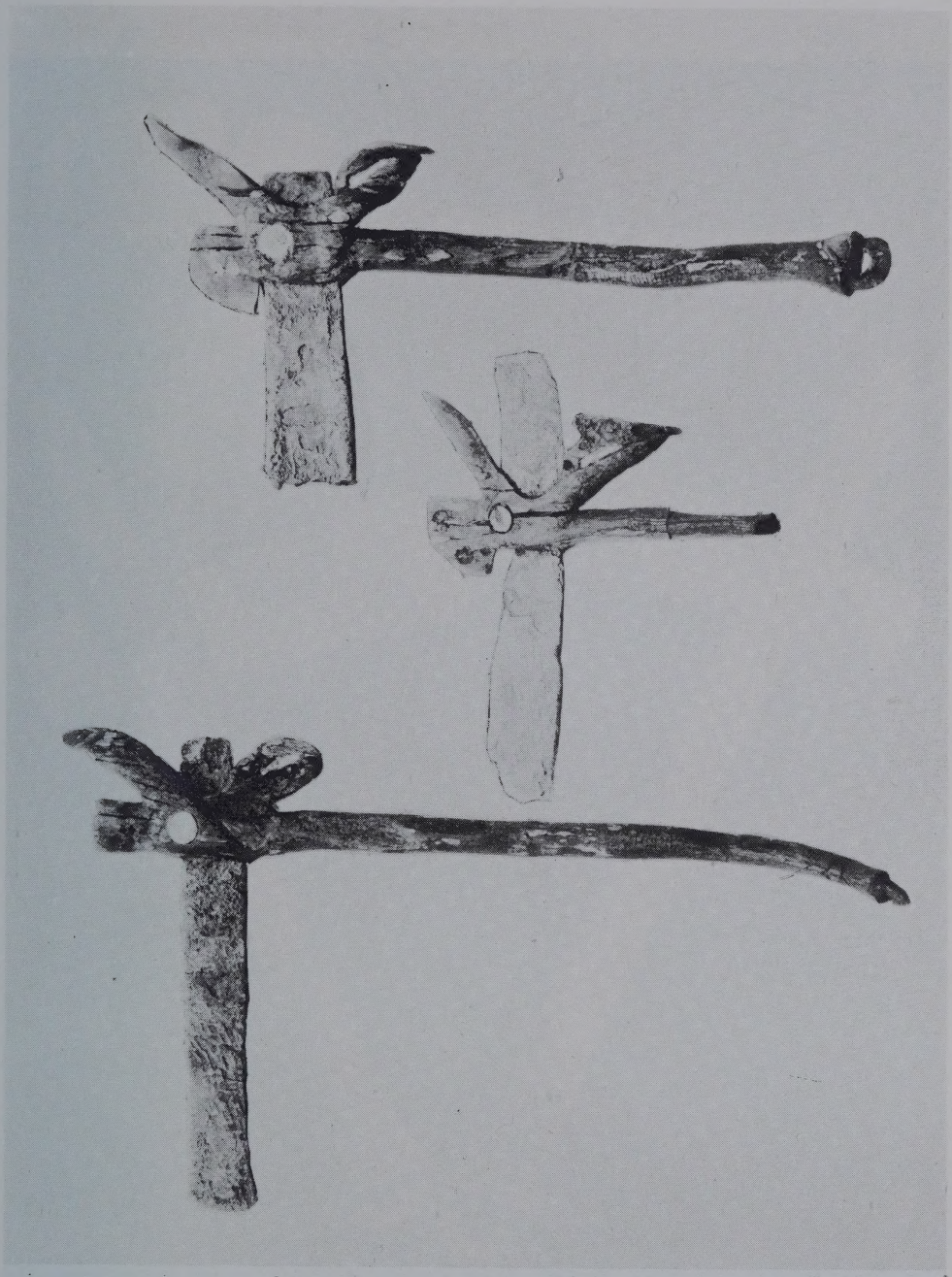


PLATE 55.--HAFTED COPPER AXES FROM CACHE
Pileated woodpecker effigy, shell inlay eye. (Longest 17 in. with copper head 8 5/8 in. in length)

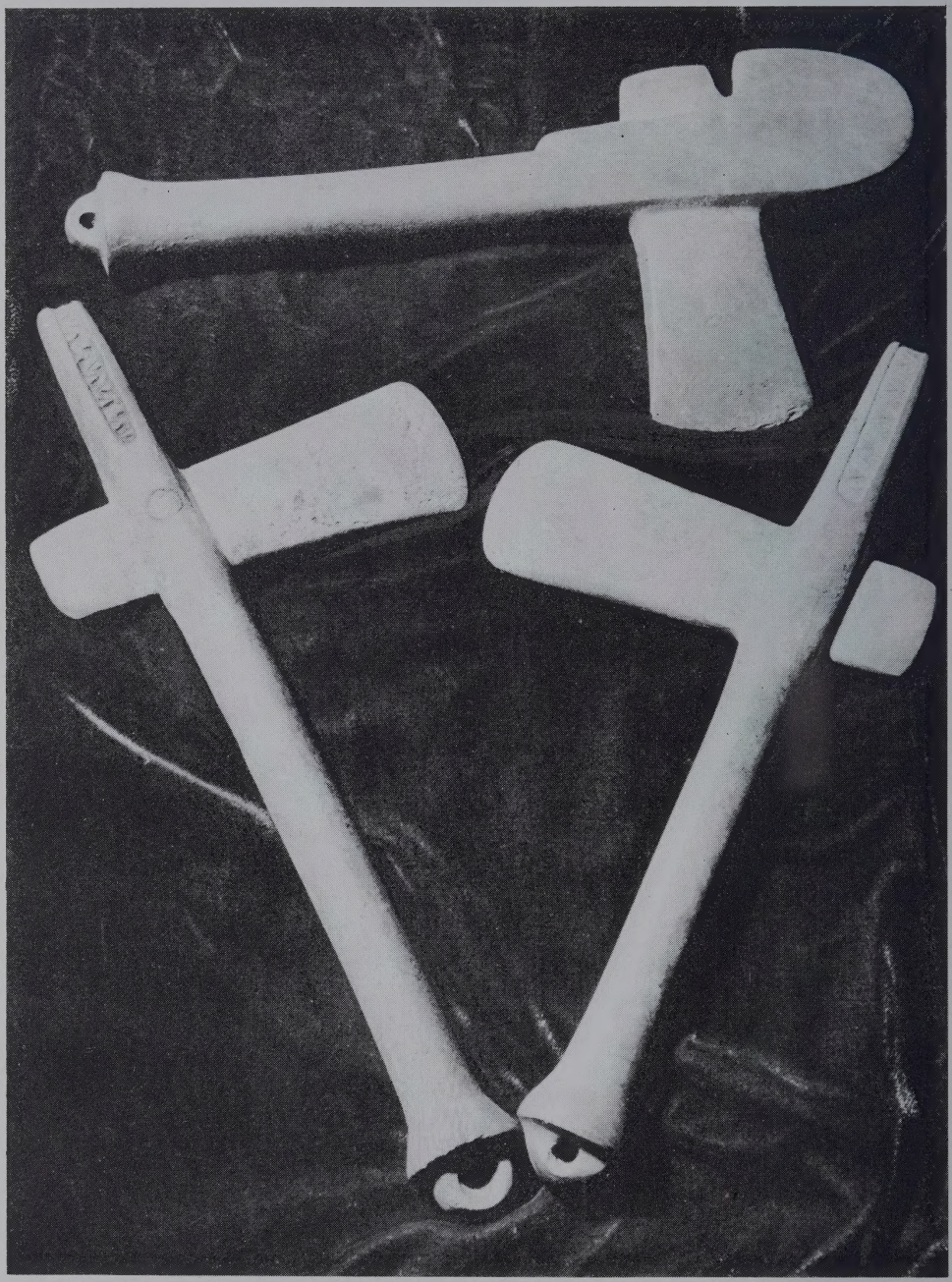


PLATE 56.--MONOLITHIC STONE AXES (Length of axe on left 16 in.)

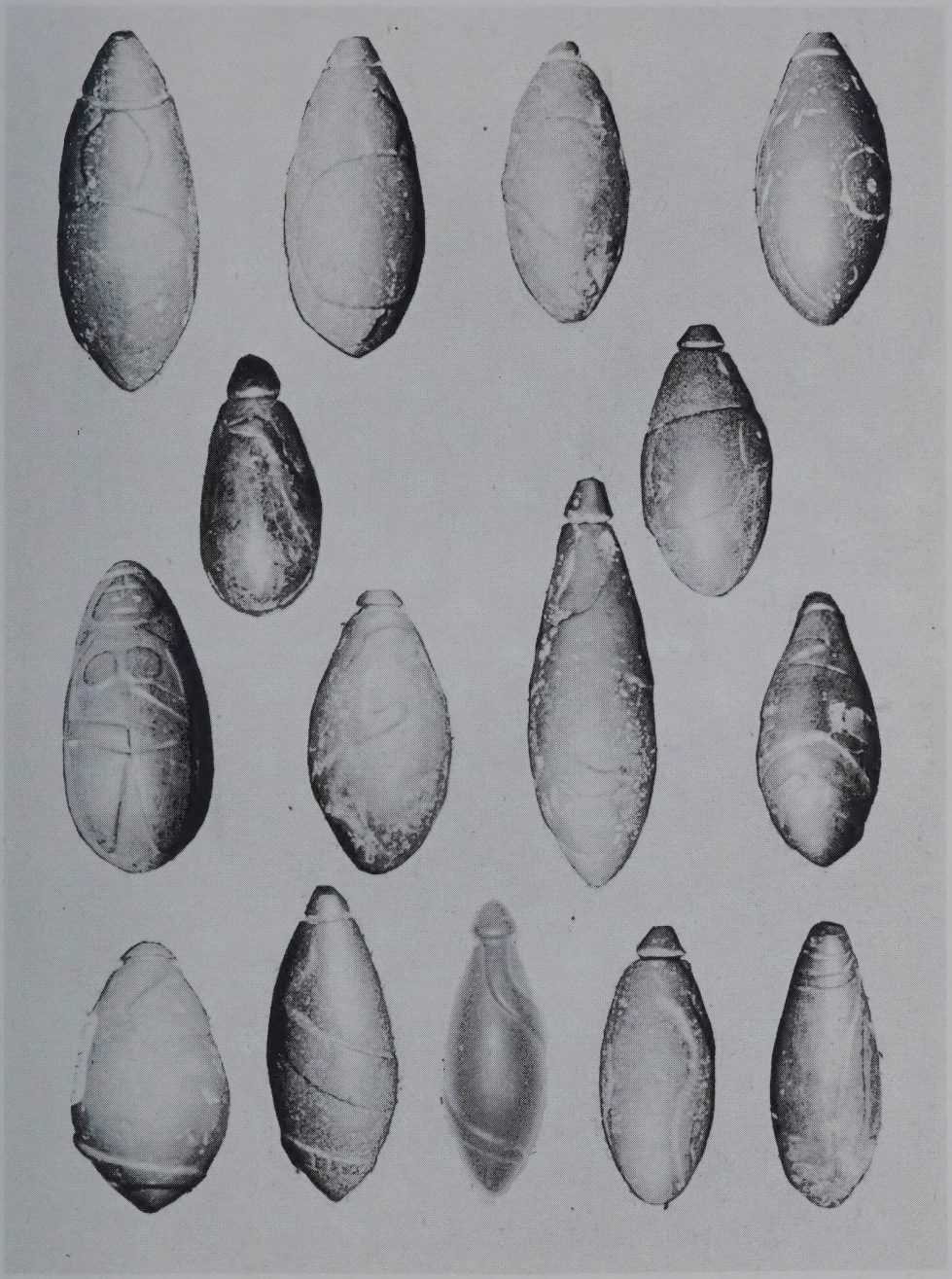


PLATE 57.--DECORATED STONE PLUMMETS

Top row--turtle decoration; first on left middle row, human form

Bottom row--snake decoration

PLATE 58.--DISCOIDALS (Upper discoidal 5 in. in diameter and 2 3/8 in. thick)

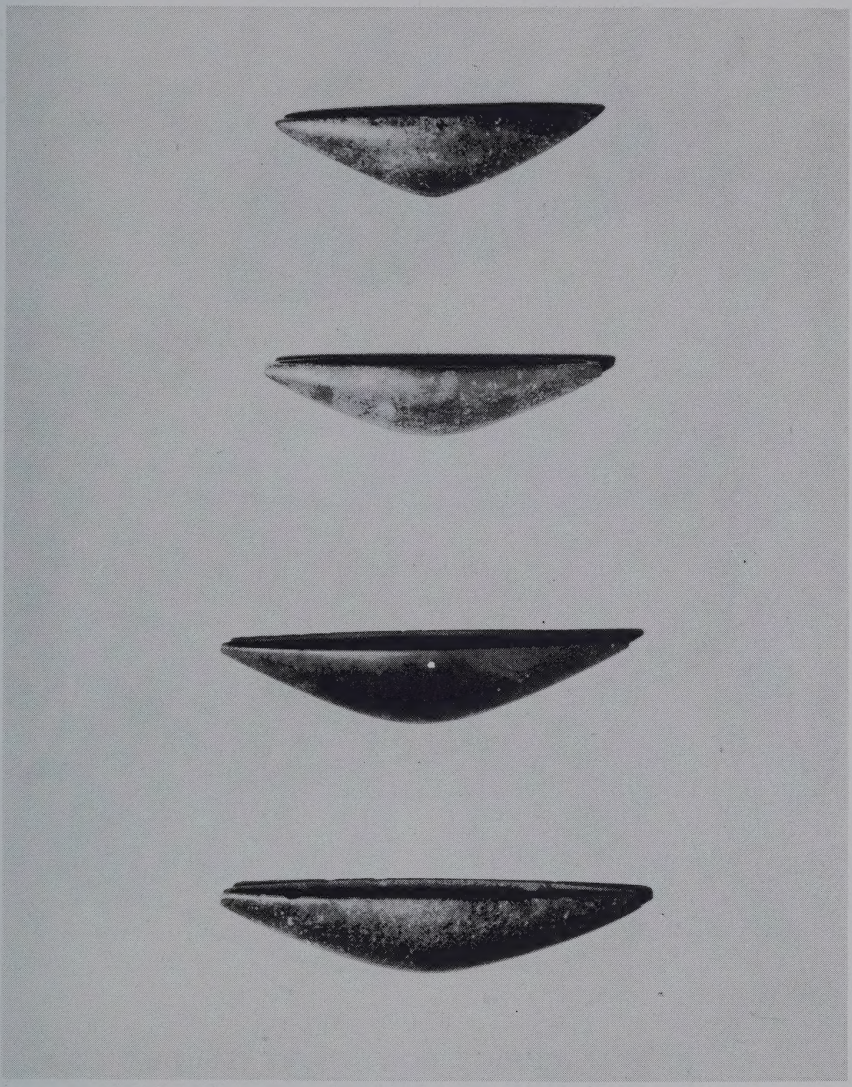
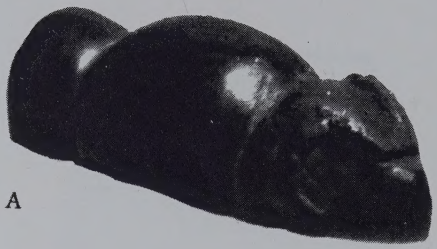
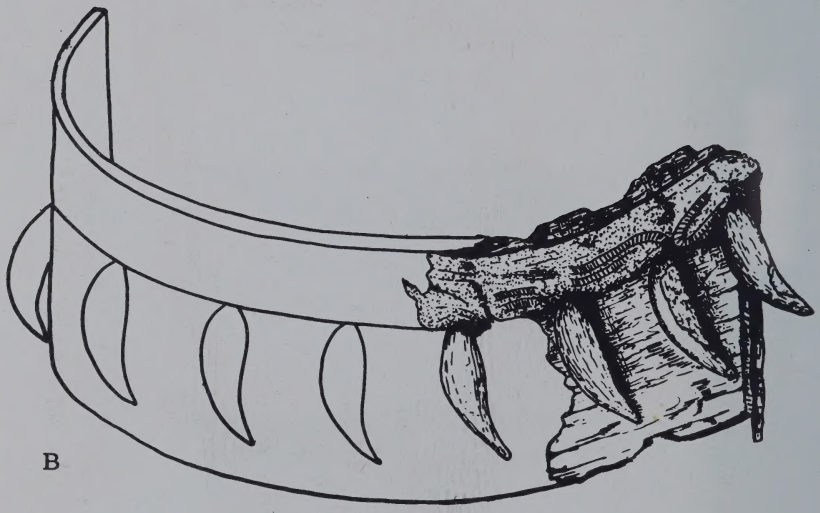


PLATE 59.--BOATSTONES (Length of smallest 6 7/8 in.; largest 7 3/4 in.)



A



B

PLATE 60.--A. OWL EFFIGY BOATSTONE (Length 3 3/8 in.)
B. RAWHIDE HEADBAND WITH IMITATION BEAR TEETH OF CEDAR

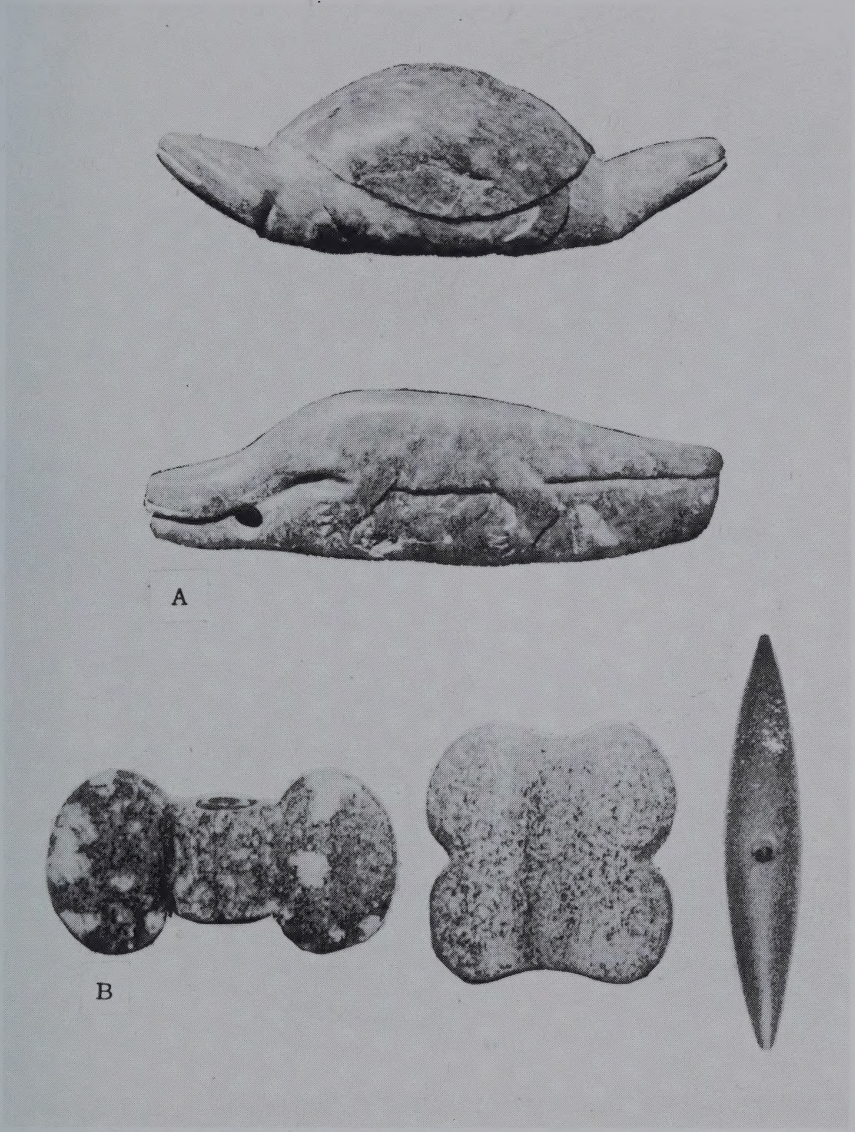


PLATE 61.--STONE EFFIGIES AND BANNERSTONES

A. Top, double-headed turtle effigy; Bottom, lizard effigy pendant

B. Bannerstones (Width of bannerstone on left is 4 in.)

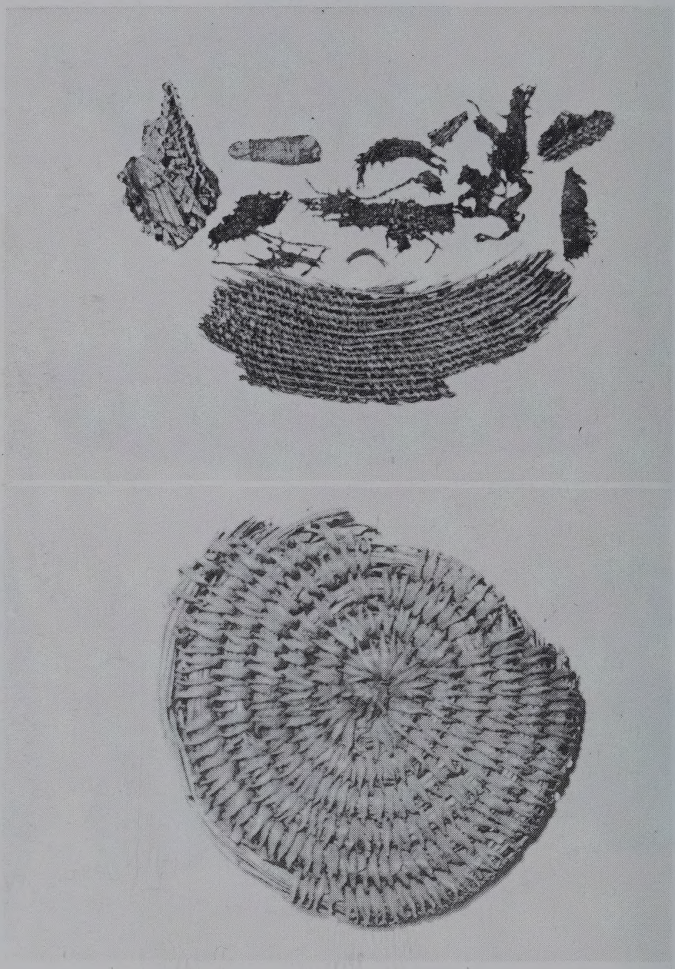


PLATE 62.--FRAGMENTS OF BASKETRY
(Some of these appear to have been subjected to fire; diameter of largest is 7 1/4 in.)

PLATE 63.--TEXTILE FRAGMENTS WITH EAGLE FEATHER DESIGN
(Longest 12 1/2 in.)

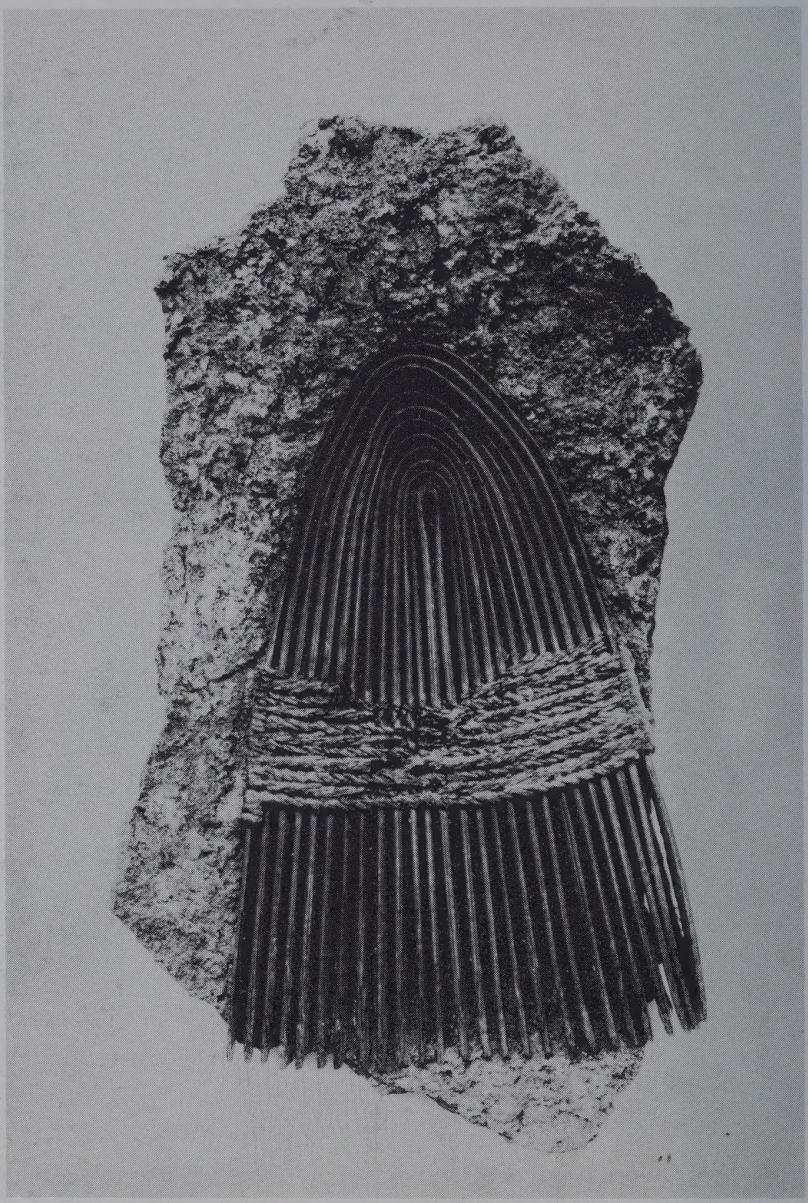


PLATE 64.--CANE COMB ON CORRODED SHEET COPPER (Over-all length 5 3/8 in.)

PLATE 65.--PEARL BEADS

A & C. Pearl Beads
B. Pearl Slugs

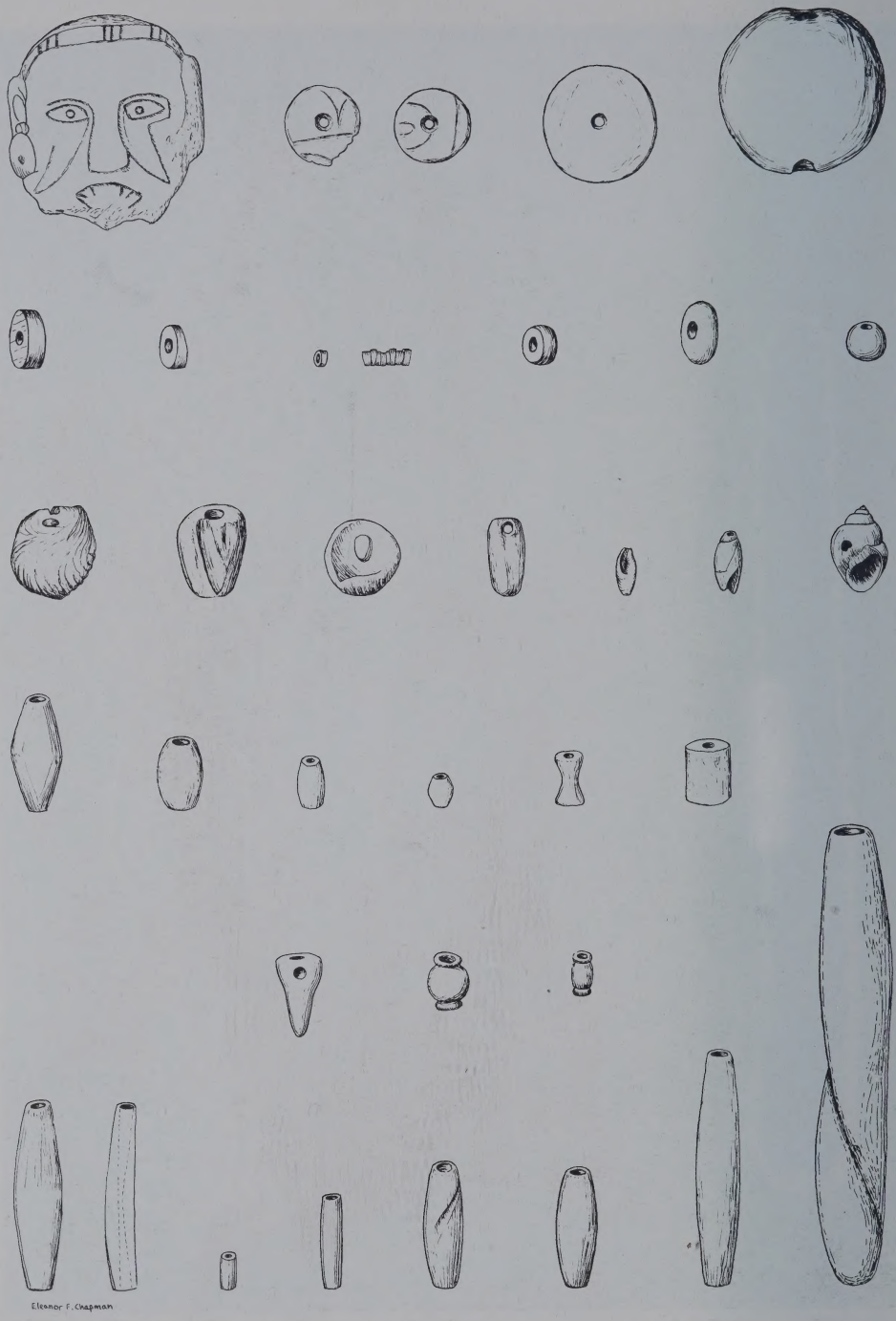


PLATE 66.--DRAWINGS OF VARIOUS SHELL BEAD FORMS

PLATE 67.--SHELL BEADS IMBEDDED IN SHIELD OF BASKETWORK AND LEATHER (Over-all length of shield is 21 in.)

PLATE 68.--CACHE OF SHELL BEADS LYING ON MATTING
(Average length of beads approximately 2 7/8 in.)

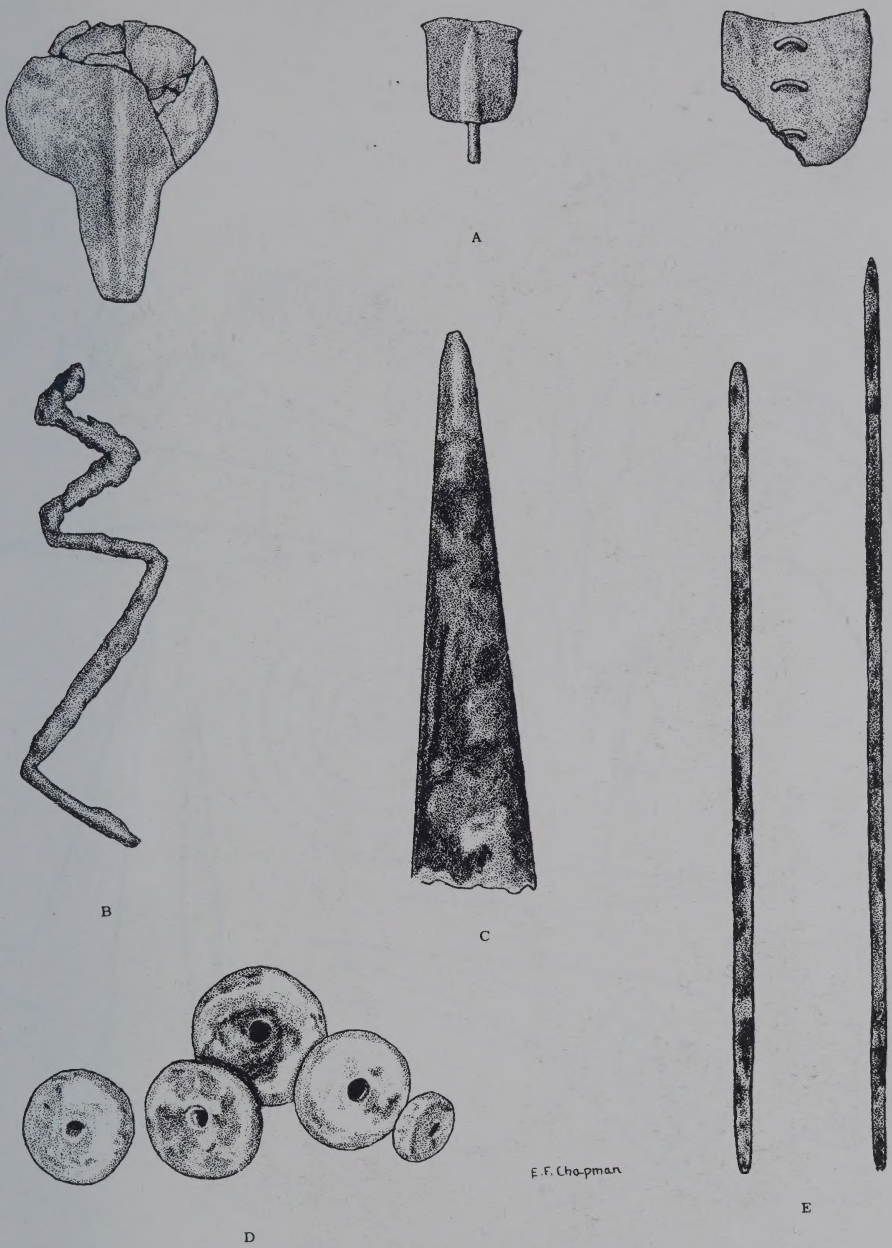


PLATE 69.--OBJECTS OF COPPER

A. Hairpins (Height of large pin 3 3/8 in.)
B. Solid copper effigy snake
C. Copper cone spear point (Length 4 7/8 in., diameter of open end 7/8 in.)
D. Copper beads (Average diameter 1/2 in., average thickness 3/16 in.)
E. Copper needles (Longest 10 7/8 in.)

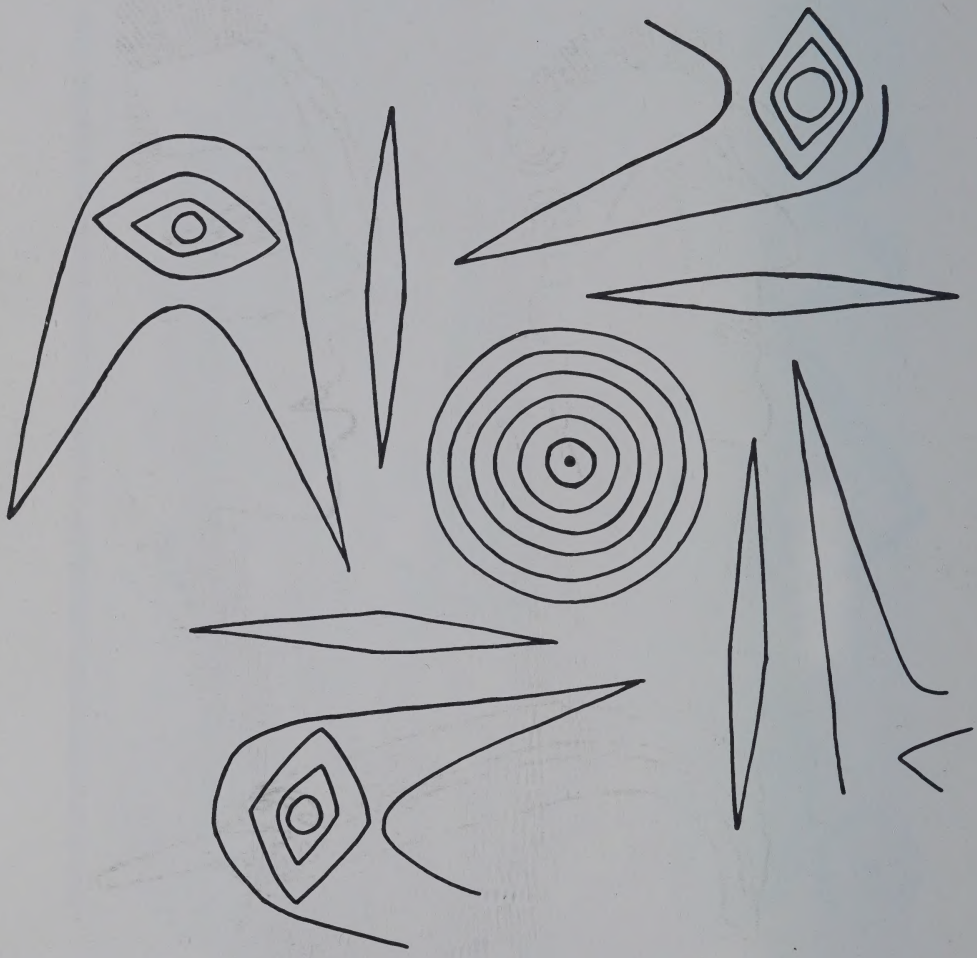


PLATE 70.--DESIGN EMBOSSED ON COPPER PLATE (Height of plate 13 in.)

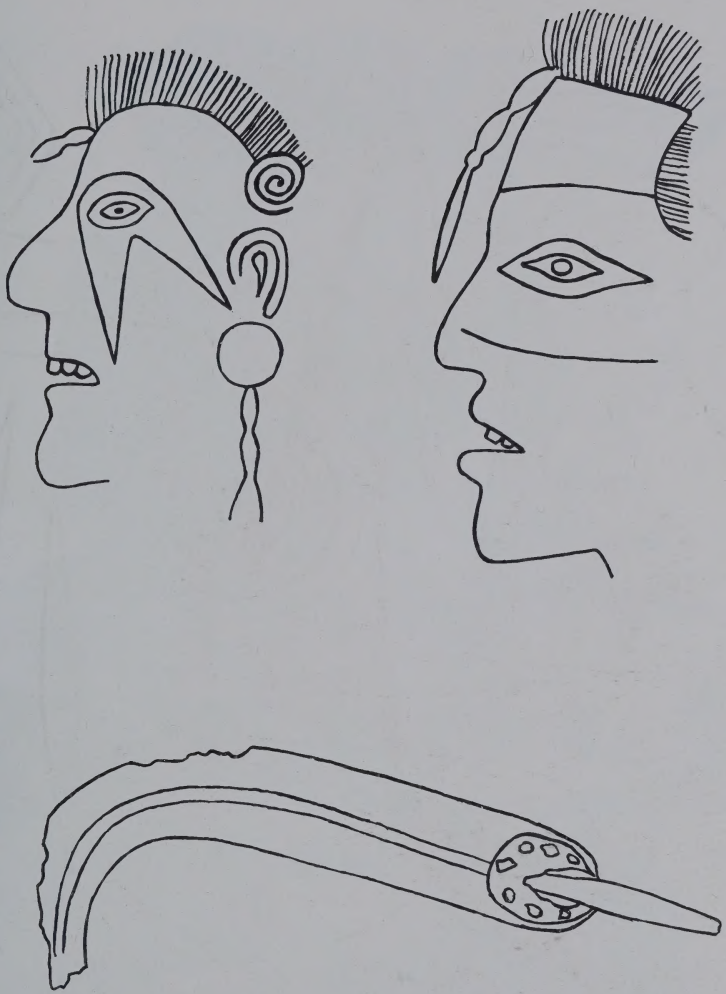


PLATE 71.--HUMAN HEADS EMBOSSED ON COPPER PLATE AND COPPER FEATHER (Heights 7 1/8 in., 8 3/4 in. and 10 1/4 in.)

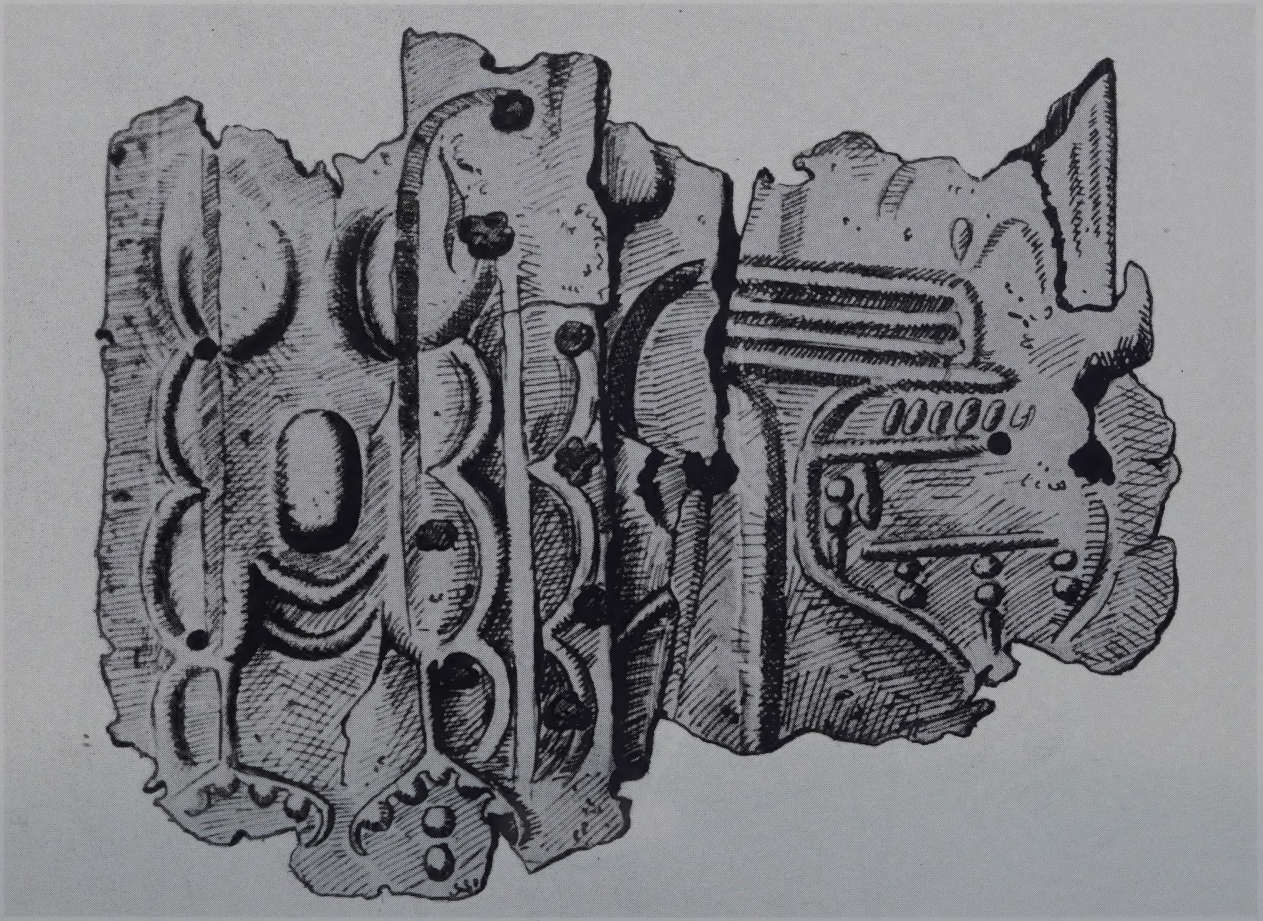


PLATE 72.--SPOTTED EAGLE EMBOSSED ON COPPER PLATE (Width of plate 7 1/4 in.)

PLATE 73.--EMBOSSED SHEET COPPER HUMAN HEAD AND COPPER COVERED EARSPOOLS

PLATE 74.--EMBOSSED SHEET COPPER FEATHERS

PLATE 75.--EMBOSSED SHEET COPPER SNAKES

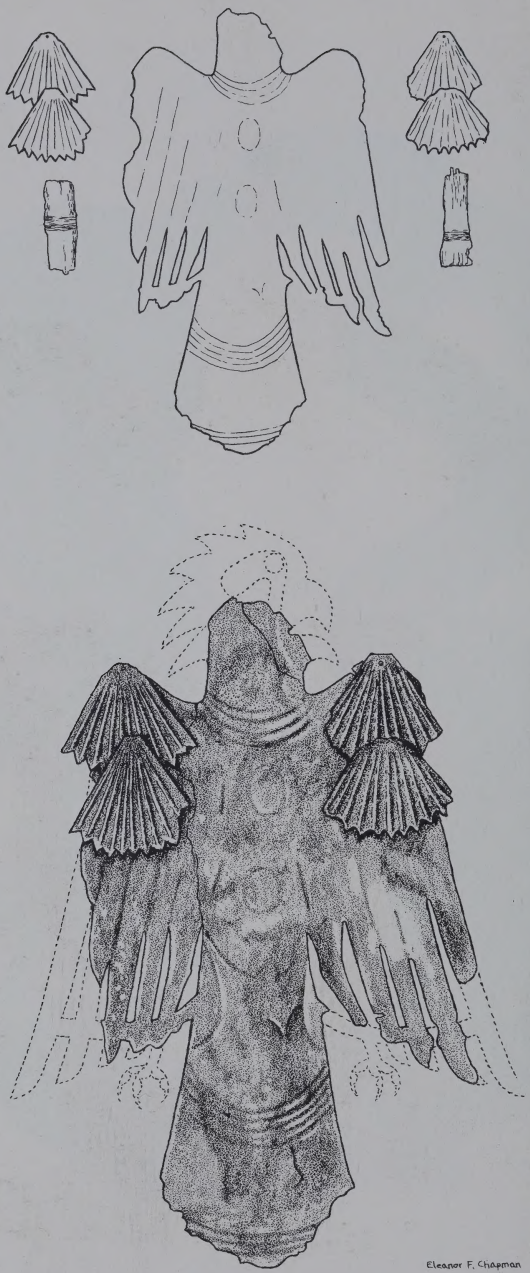


PLATE 76.--EMBOSSED SHEET COPPER EAGLE (Height of figure 11 1/2 in.)

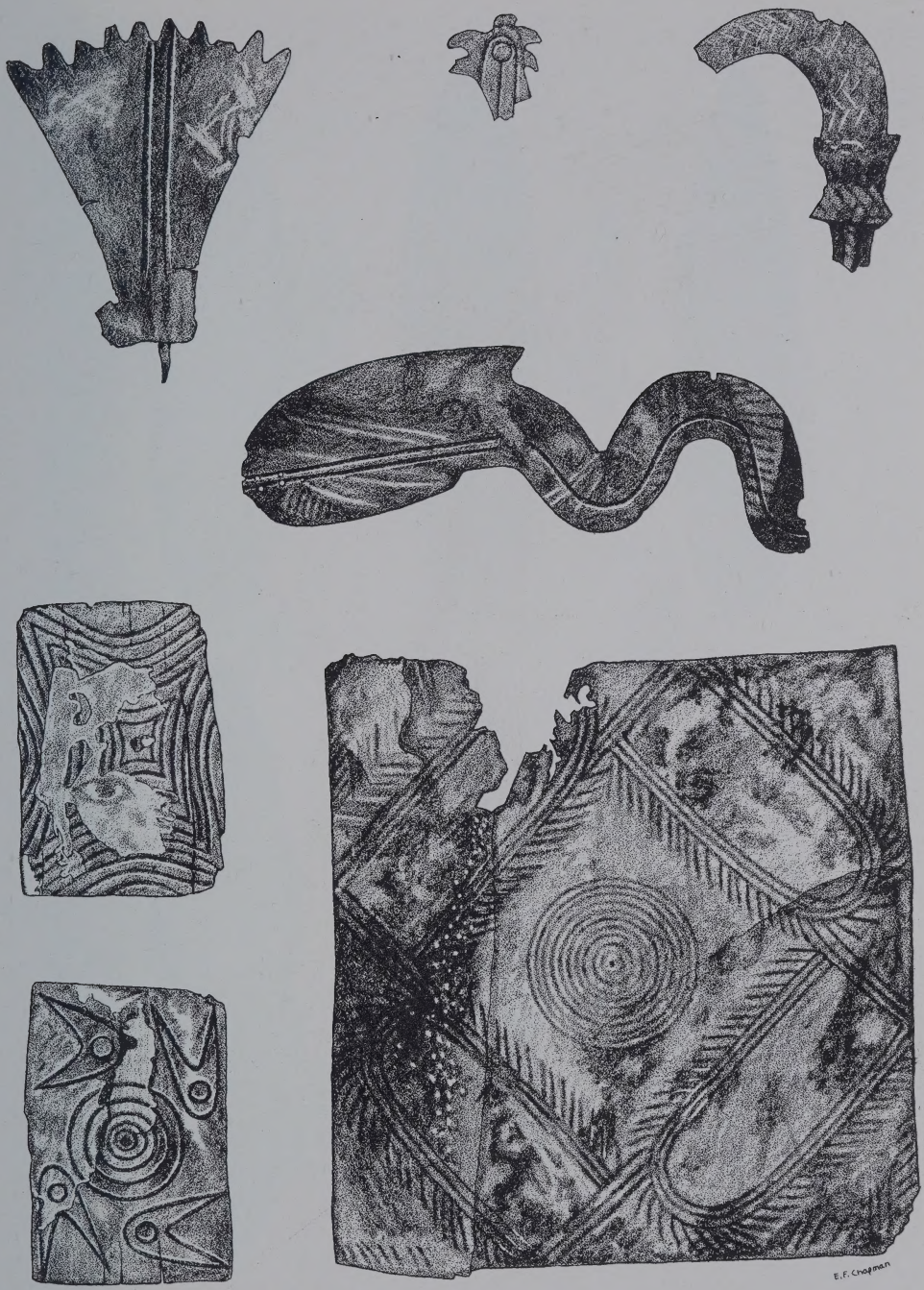


PLATE 77.--EMBOSSED SHEET COPPER FIGURES AND EMBOSSED DESIGNS ON COPPER PLATES

PLATE 78.--BLADE-LIKE CEDAR OBJECTS PARTIALLY COVERED WITH EMBOSSED SHEET COPPER

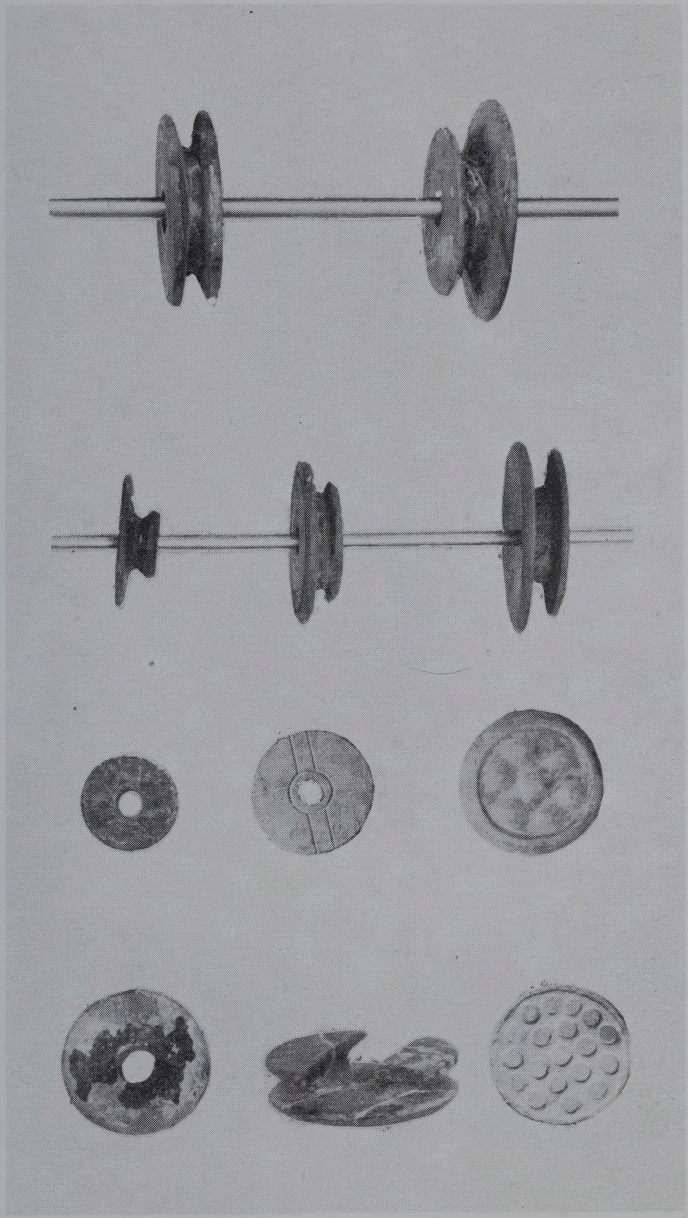


PLATE 79.--STONE EARSPOOLS, COPPER COVERED

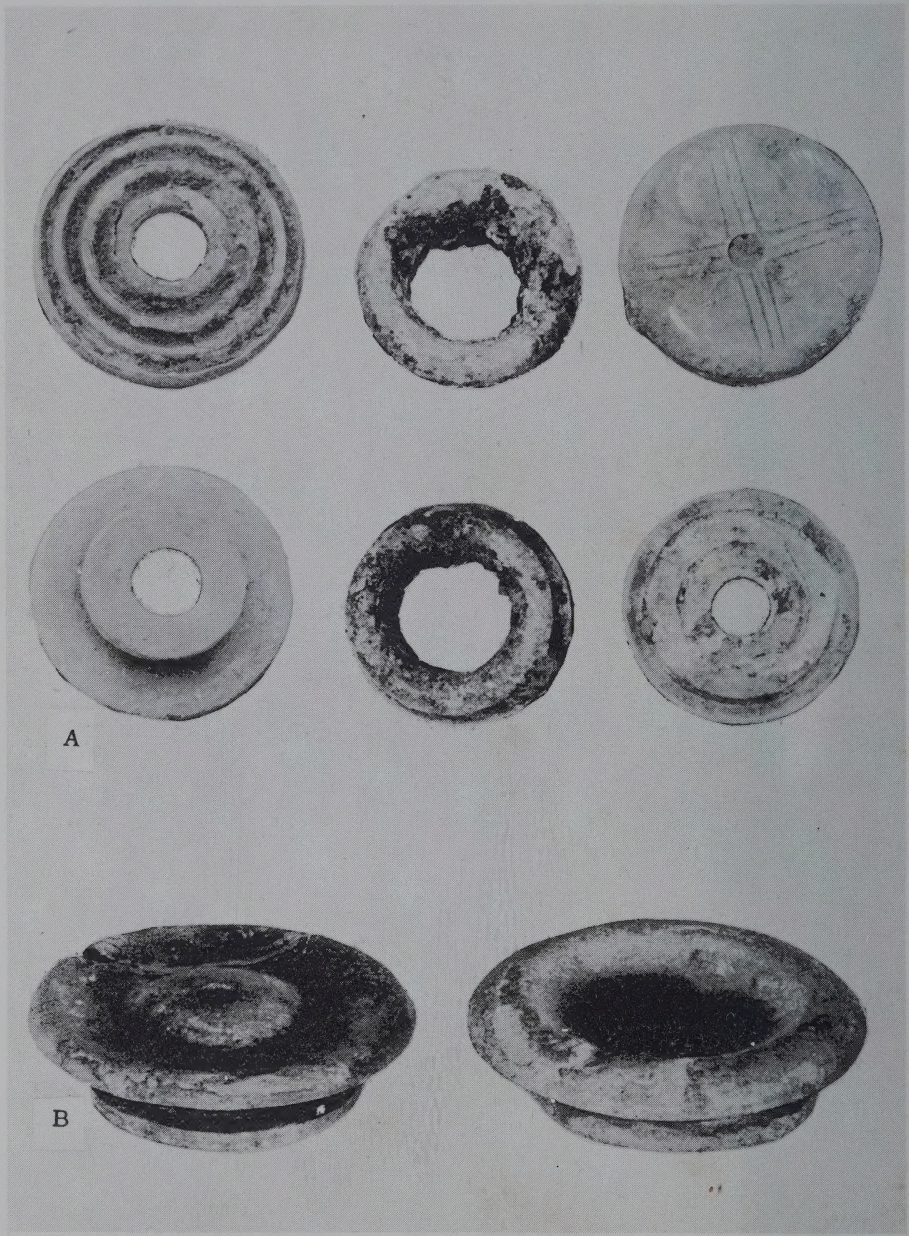


PLATE 80.--STONE EARSPOOLS, COPPER COVERED

PLATE 81.--DESIGNS ON STONE EARSPOOLS

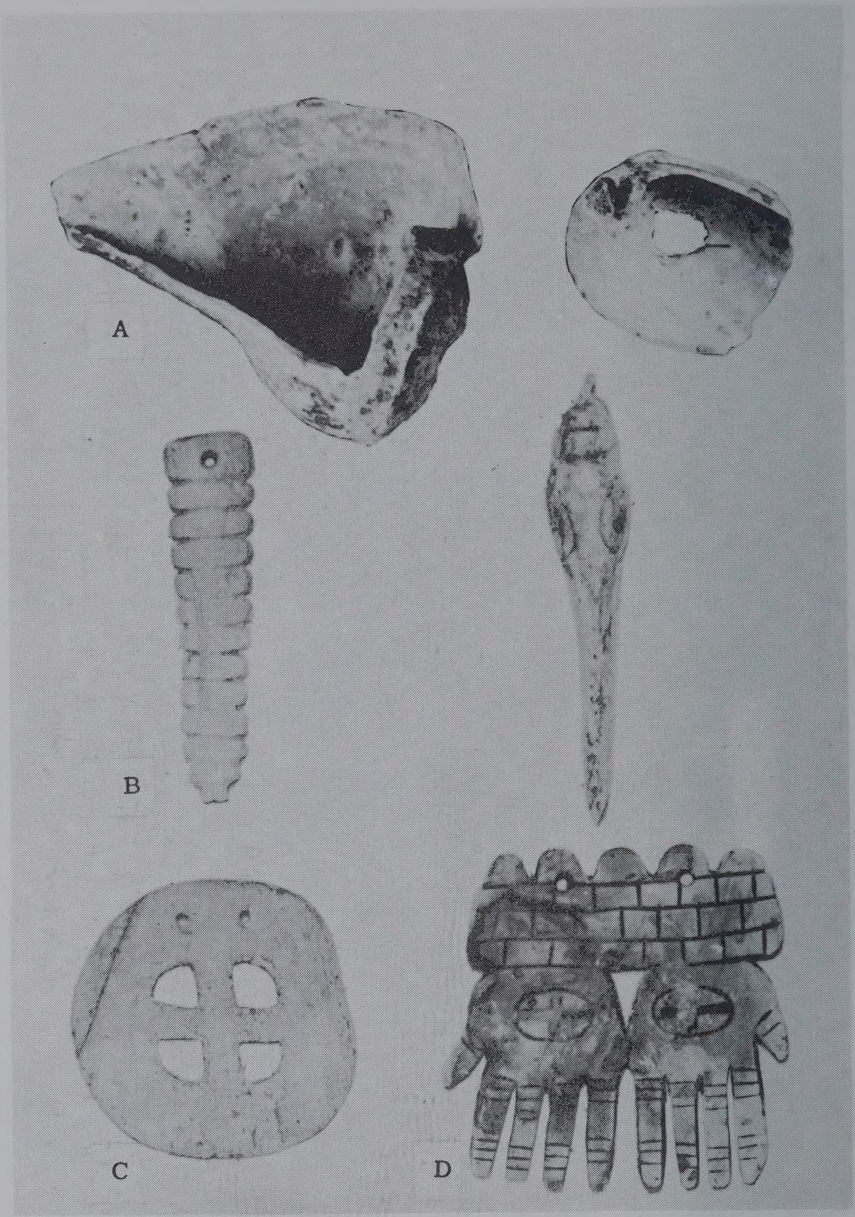


PLATE 82.--OBJECTS OF SHELL

A. Bowl and hoe (Height of bowl 8 1/4 in.)
B. Effigy rattlesnake rattle and bird-like effigy pendant. (Length of latter 3 1/2 in.)
C. World symbol gorget (Diameter 2 1/8 in.)
D. Hand gorget (Height 3 3/8 in.)

PLATE 83.--SHELL FISHHOOK AND CONCH CORE PENDANTS
(Height of fishhook 2 1/4 in.; length of pendants 9 1/2 in.)

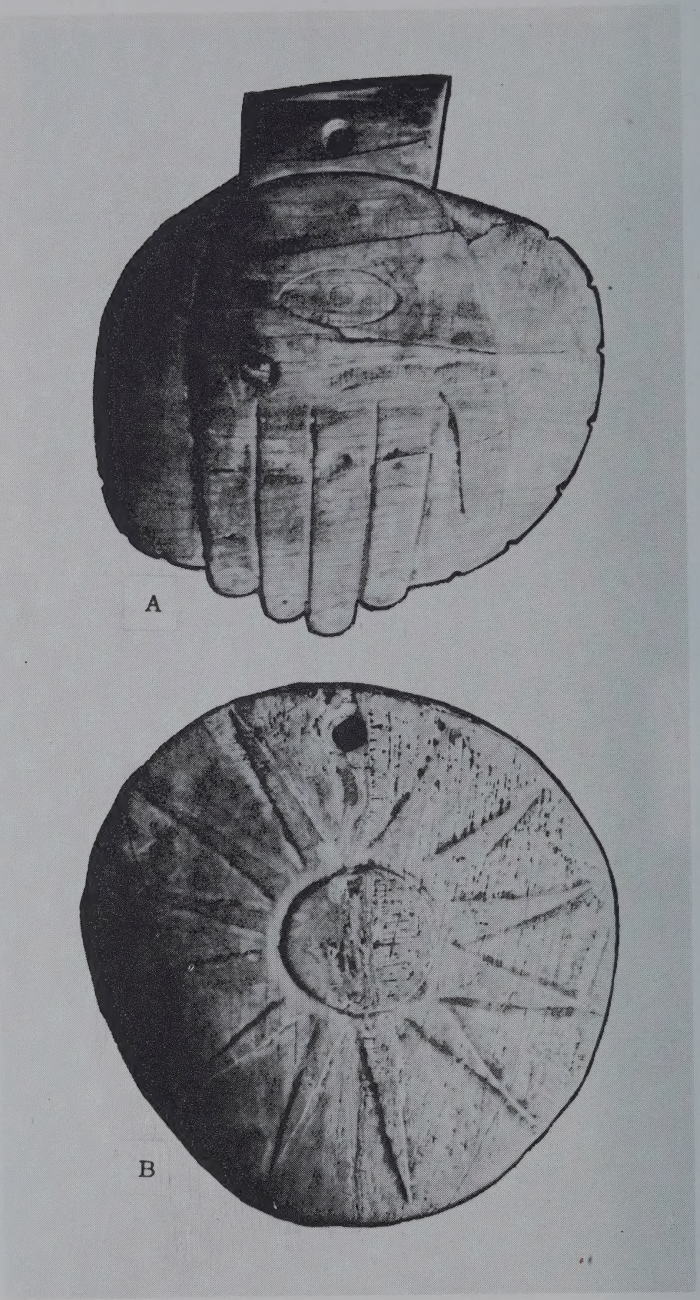


PLATE 84.--SHELL PENDANTS

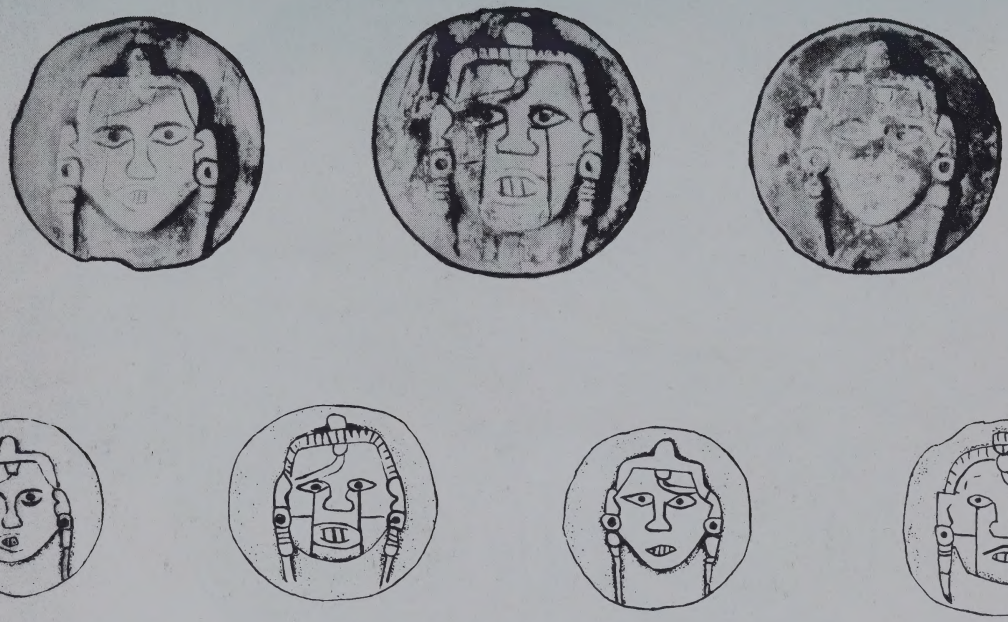


PLATE 85.--SHELL CAMEOS (Diameters 1 9/16, 1 11/16 and 1 9/16 in.)

PLATE 86.--SHELL GORGET (Diameter 4 3/4 in.)

PLATE 87.--HUMAN FIGURE CARVED FROM SHELL (Height 5 in.)

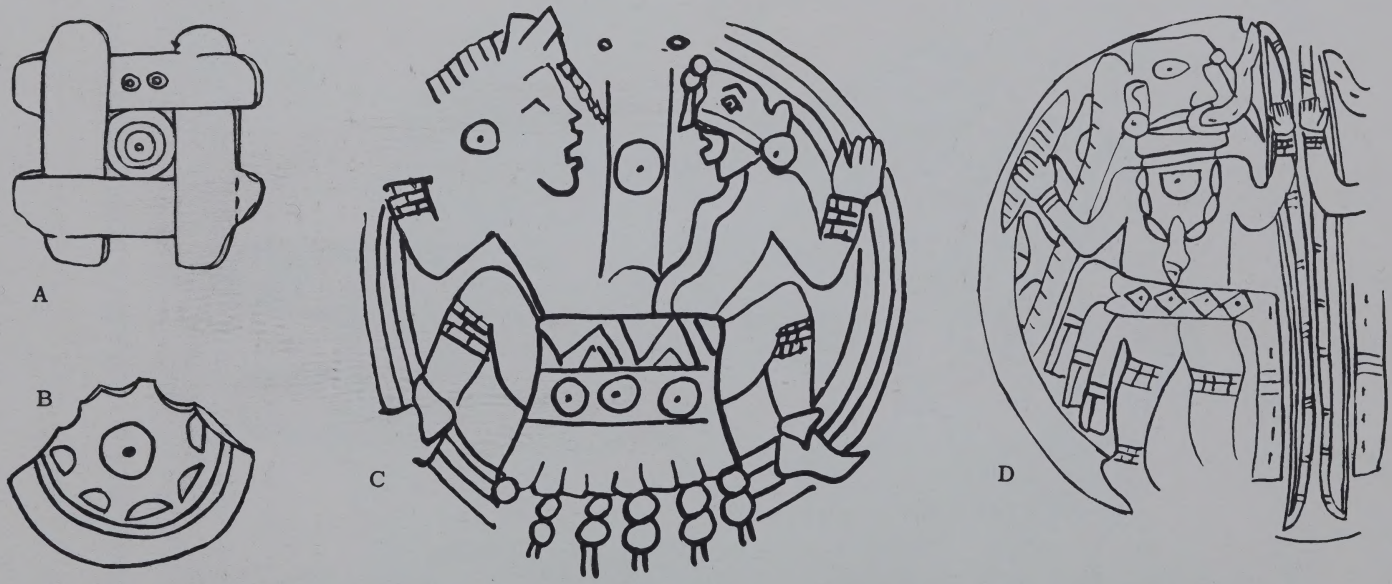
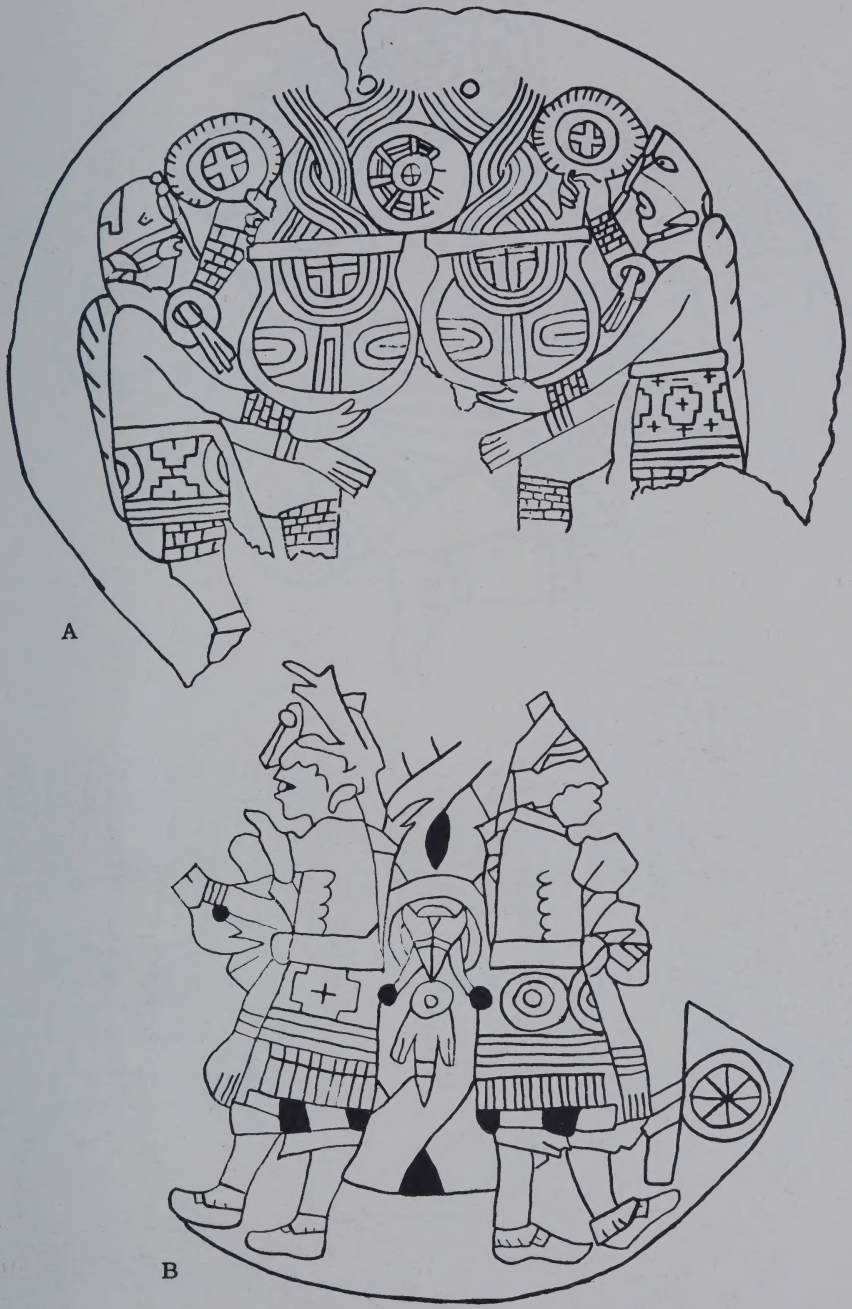


PLATE 88.--SHELL GORGETS

A. World Symbol (Width 3 3/4 in.) B. Spoke-wheel (Diameter 2 1/2 in.)
C. Two-headed human effigy (Height 4 3/4 in.) D. Dancers with bows



A

B

PLATE 89.--SHELL GORGETS

A. Human figures holding vessels (Greatest height 5 1/4 in.)

B. Heavily dressed human figures (Height 5 5/16 in.)

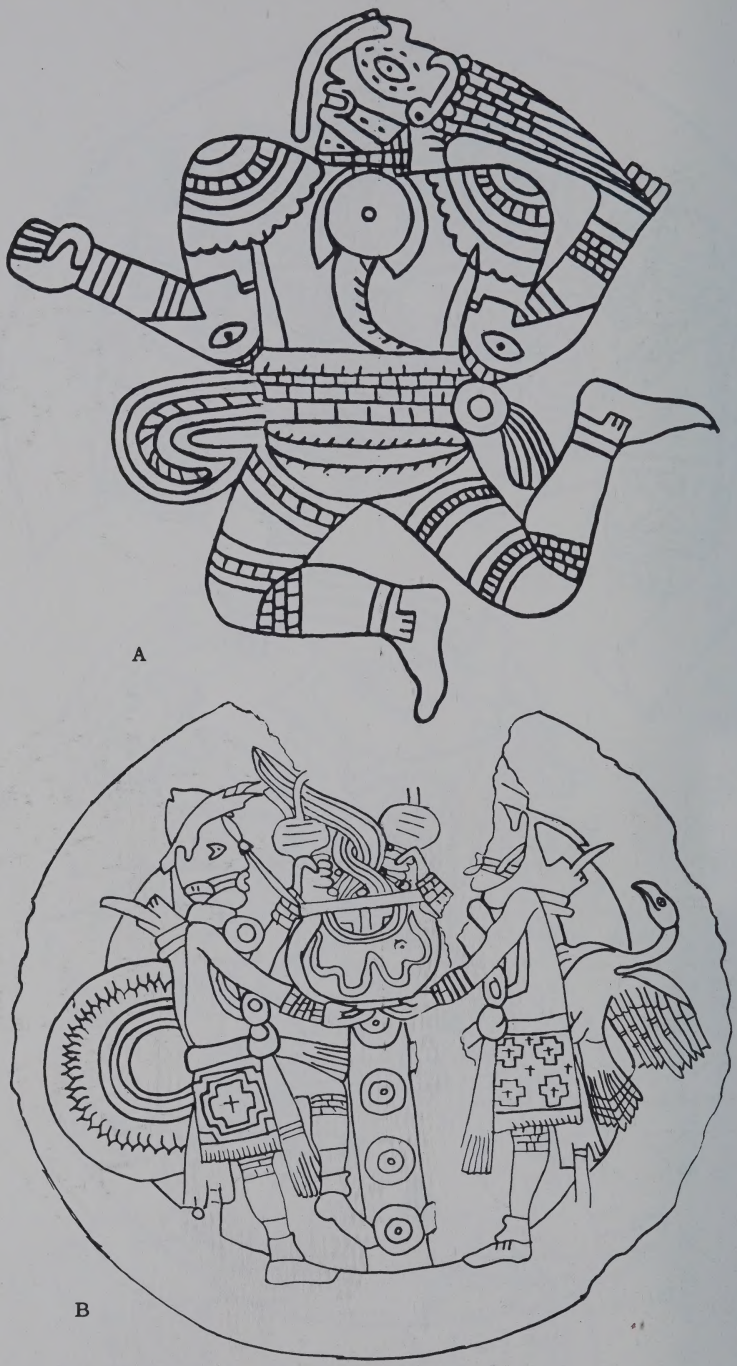
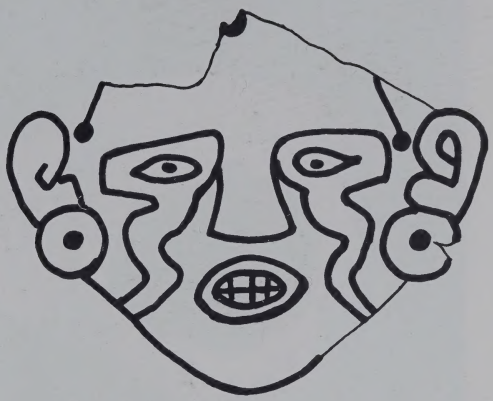


PLATE 90.--SHELL GORGETS

A. The "Runner" (Diameter 5 in.)

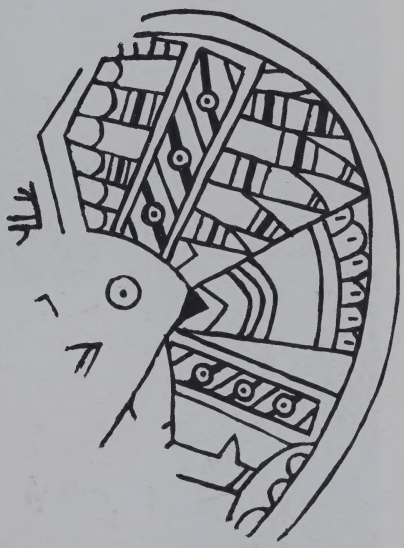
B. Heavily dressed figures holding vessel (Diameter 5 1/2 in.)

A



B

C



D

PLATE 91.--SHELL GORGETS

A. Human figure (Height 4 3/4 in.)
B. Human face (Width 3 1/4 in.)
C. Hands (Height 3 3/8 in.) D. Bird (Height 4 3/8 in.)

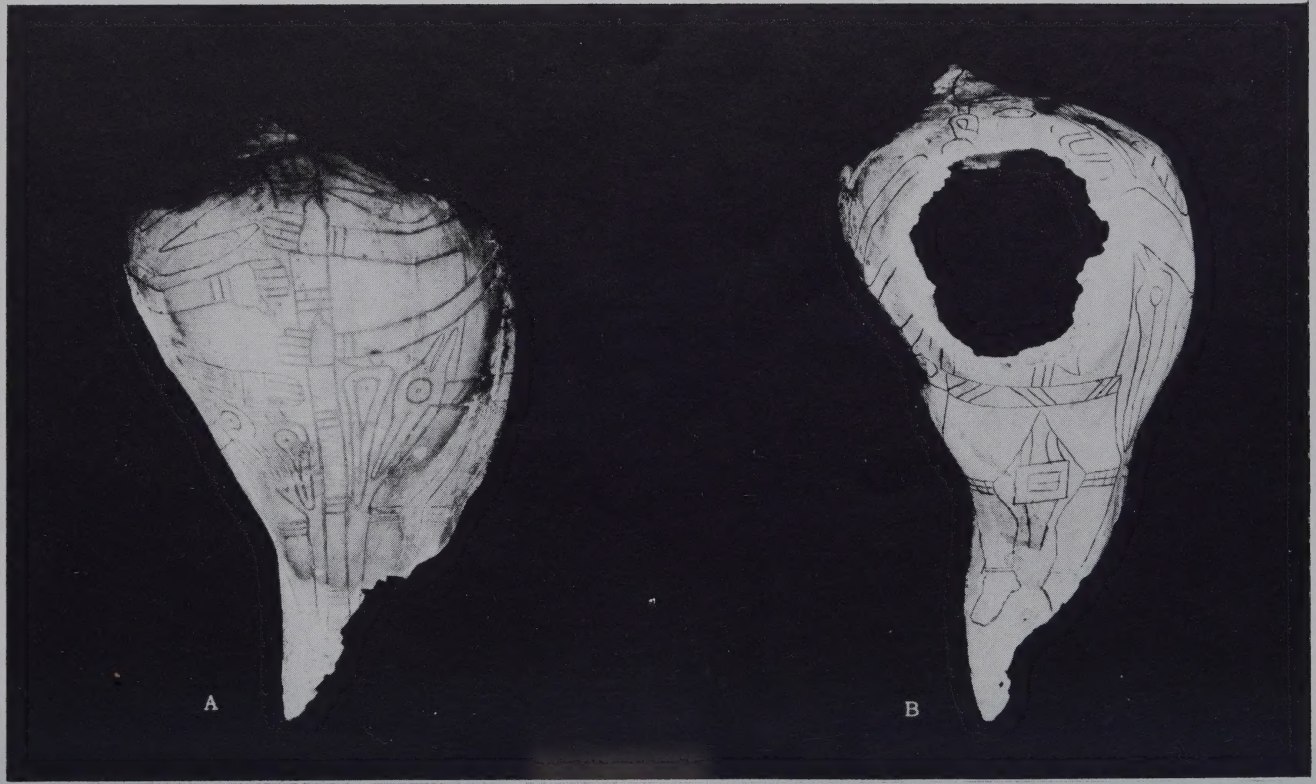


PLATE 92.--TYPICAL LARGE CONCH SHELLS UPON WHICH DESIGNS WERE ENGRAVED
(Height of figure engraved on shell at right 14 5/8 in.)

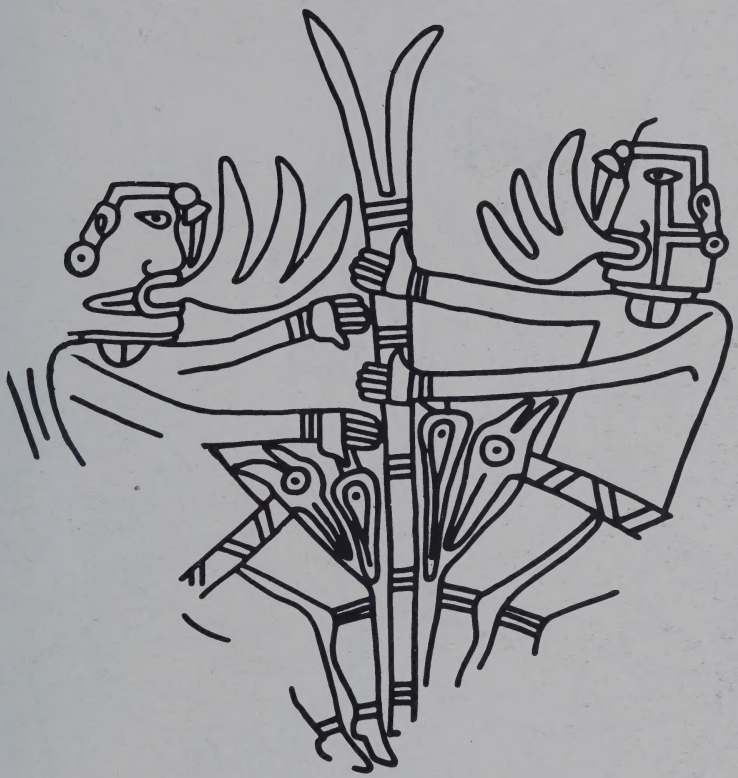


PLATE 93.--"CHOOSING UP SIDES," THE BUSK OR GREEN CORN CEREMONY (Height 14 5/8 in.)

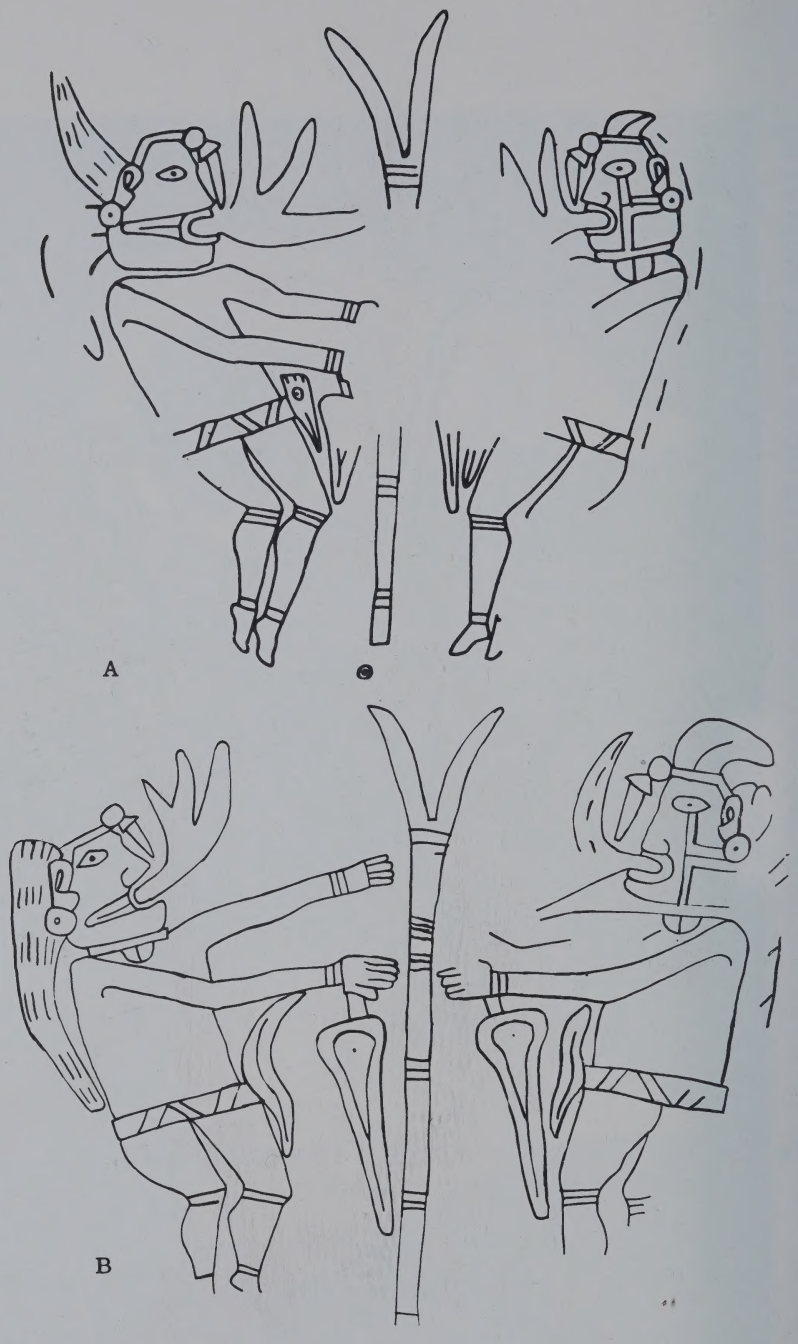


PLATE 94.--"CHOOSING UP SIDES," THE BUSK OR GREEN CORN CEREMONY (Heights 15 1/2 and 13 3/8 in.)

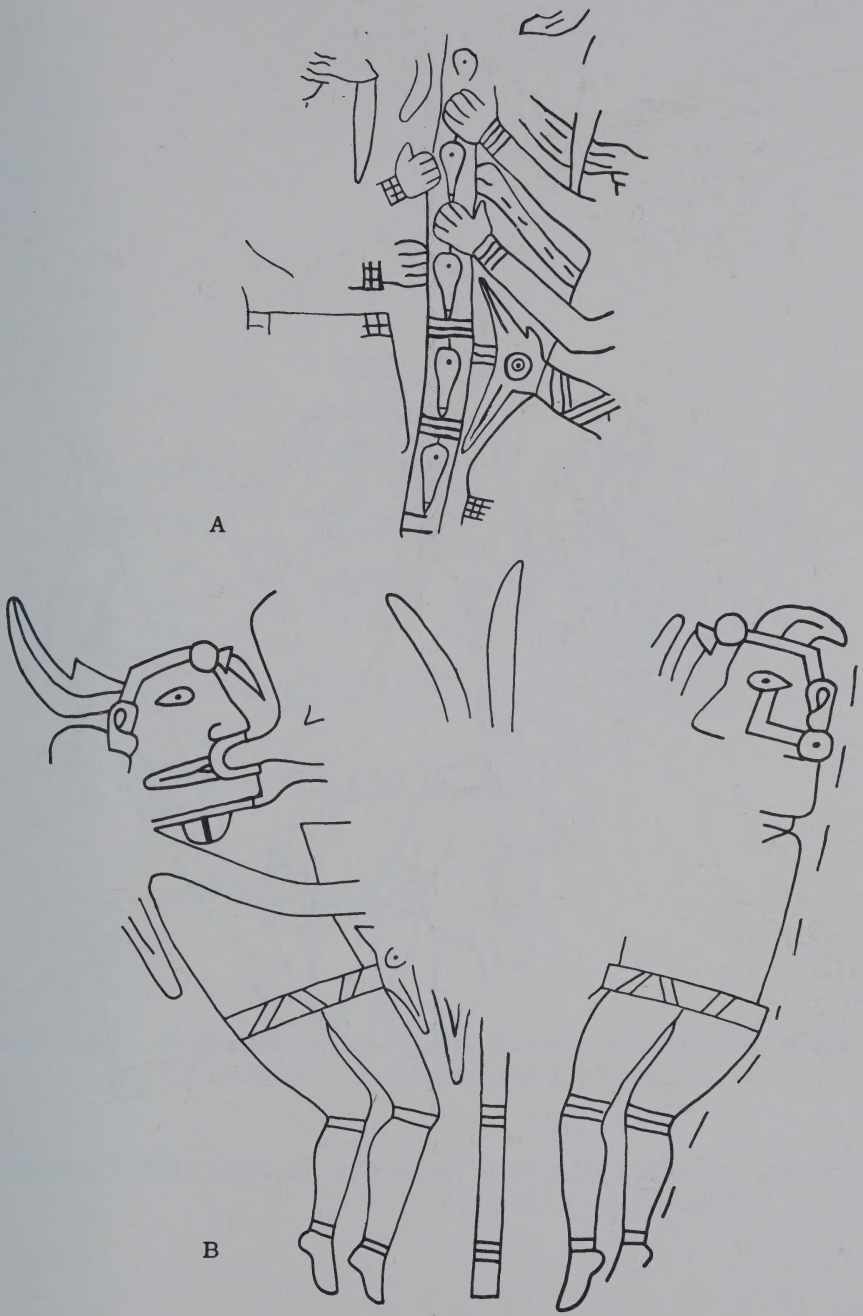


PLATE 95.--"CHOOSING UP SIDES," THE BUSK OR GREEN CORN CEREMONY
A. (Height 10 3/4 in.) B. (Height 14 1/2 in.)

PLATE 96.--"OFFICIAL," THE BUSK OR GREEN CORN CEREMONY
(Shell 7 x 12 1/2 in.)

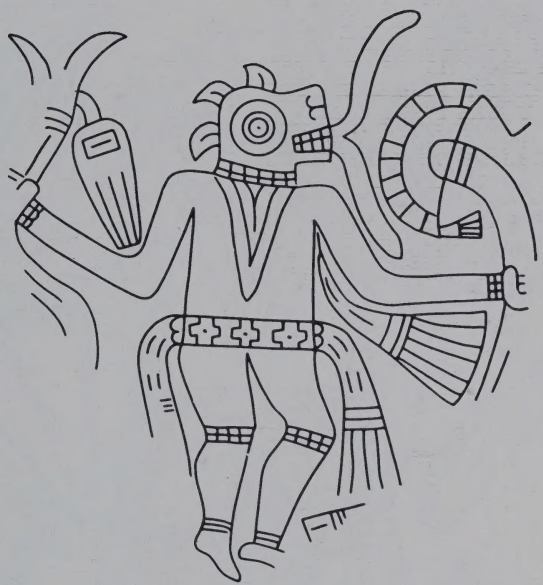


PLATE 97.--MASKED DANCER, THE BUSK OR GREEN CORN CEREMONY (Length of shell 12 1/4 in.)

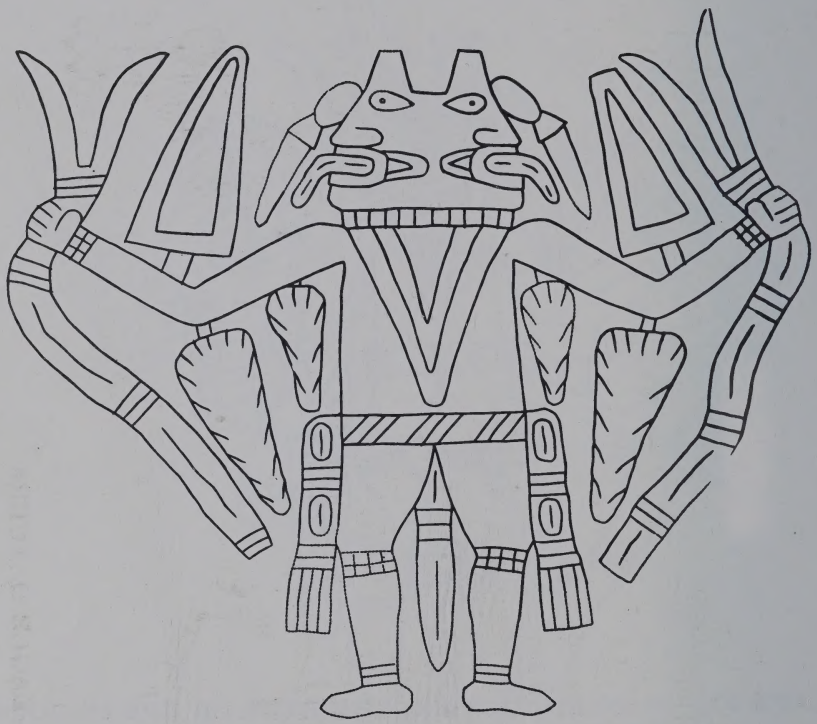
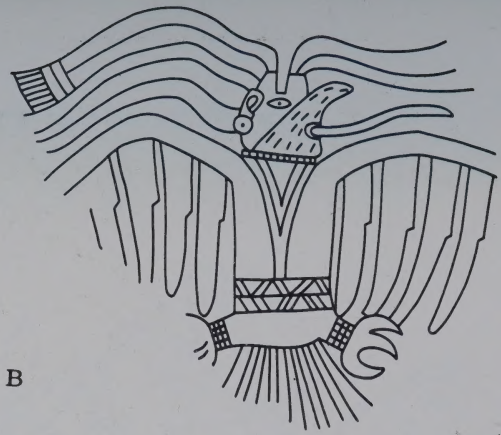


PLATE 98.--DOUBLE-FACED MASKED FIGURE, THE BUSK OR GREEN CORN CEREMONY (Shell, 7 1/2 in. x 9 1/4 in.)

A



B

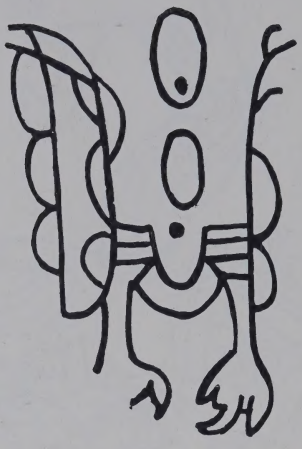
C

PLATE 99.--EAGLE DANCERS

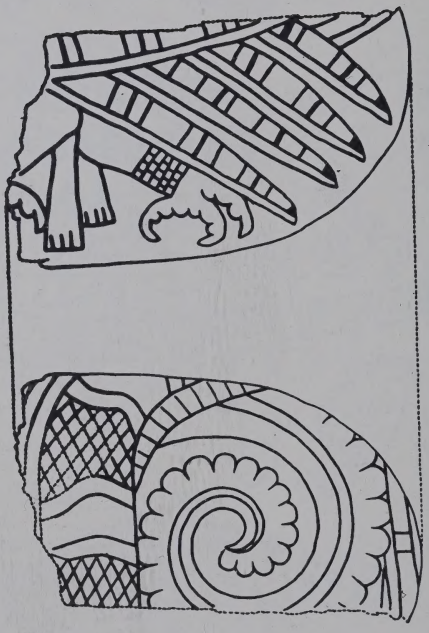
A. (Length of shell 13 in.) B. Length of shell 10 1/8 in.)
C. (Length of shell 13 1/4 in.)

PLATE 100.--CONVENTIONALIZED EAGLE (Height 12 1/2 in.)

PLATE 101.--A. EAGLE (Length of shell 11 in.)
B. BIRD AND SUN DESIGN (Height 12 1/8 in.)

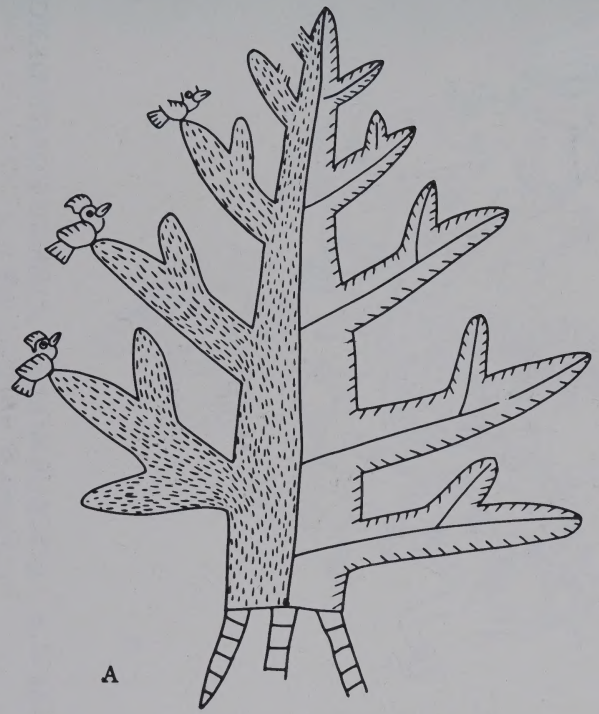


A

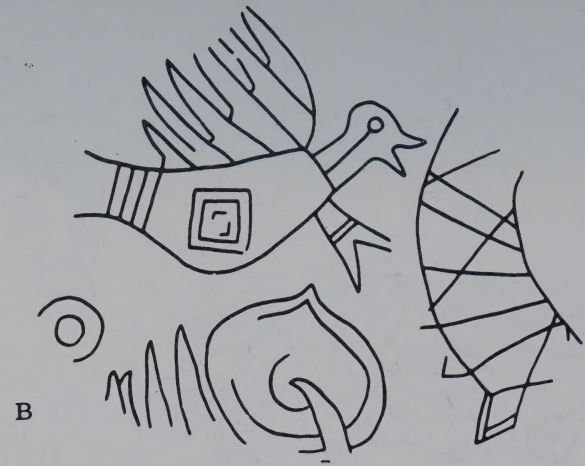


B

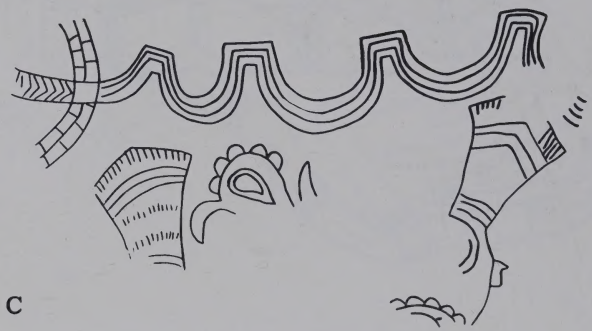
PLATE 102.--A. SPOTTED EAGLE (Height 2 5/8 in.)
B. EAGLE AND SCROLL DESIGN ON TWO SIDES OF SAME PIECE OF SHELL (Height 4 3/4 in.)



A



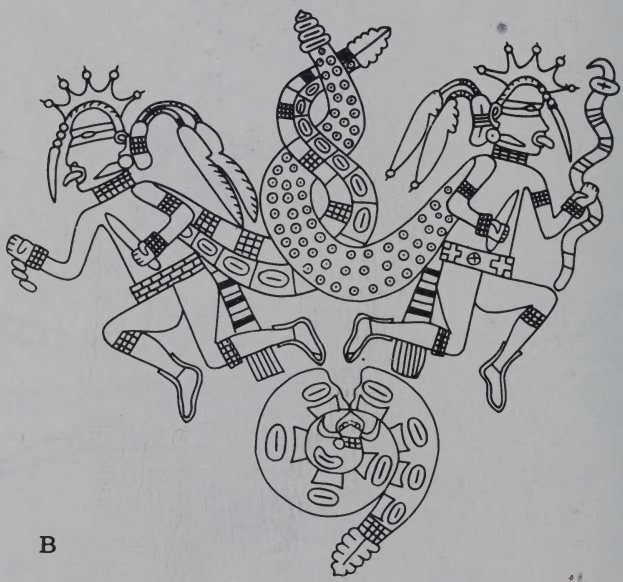
B



C

PLATE 103.--A. CONVENTIONALIZED TREE WITH CRESTED BIRDS (Length of shell 10 1/4 in.)
B. BIRD FLYING (Height 7 1/8 in.)
C. TURKEY (Height 6 1/4 in.)

A



B

PLATE 104.--A. DOUBLE-FACED MASKED SNAKE DANCER (Length of shell 11 5/8 in.)
B. TWO SNAKE DANCERS (Length of shell 12 3/8 in.)

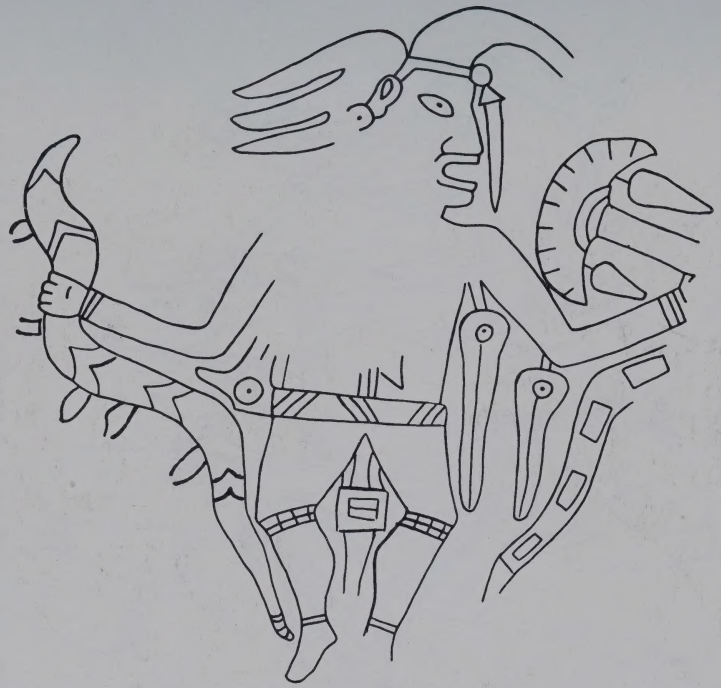


PLATE 105.--SNAKE DANCER (Height 14 5/8 in.)

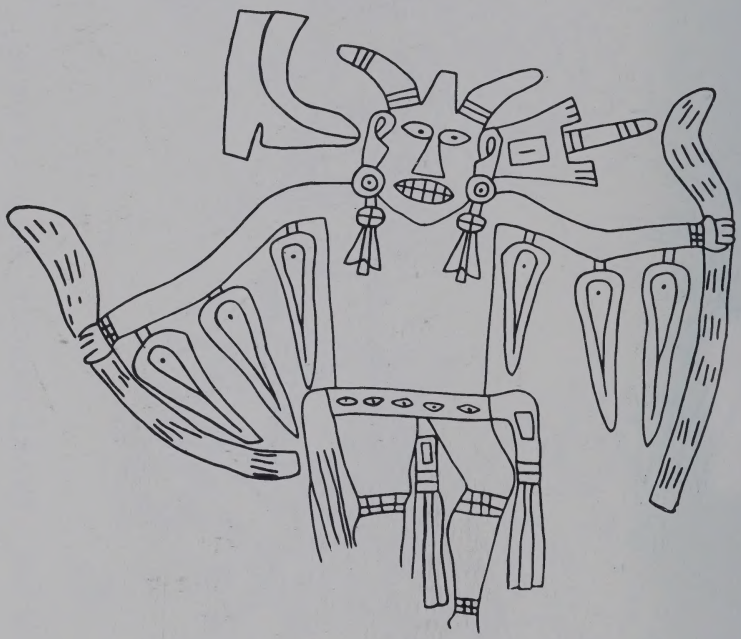


PLATE 106.--SNAKE DANCER (Height 13 3/8 in.)

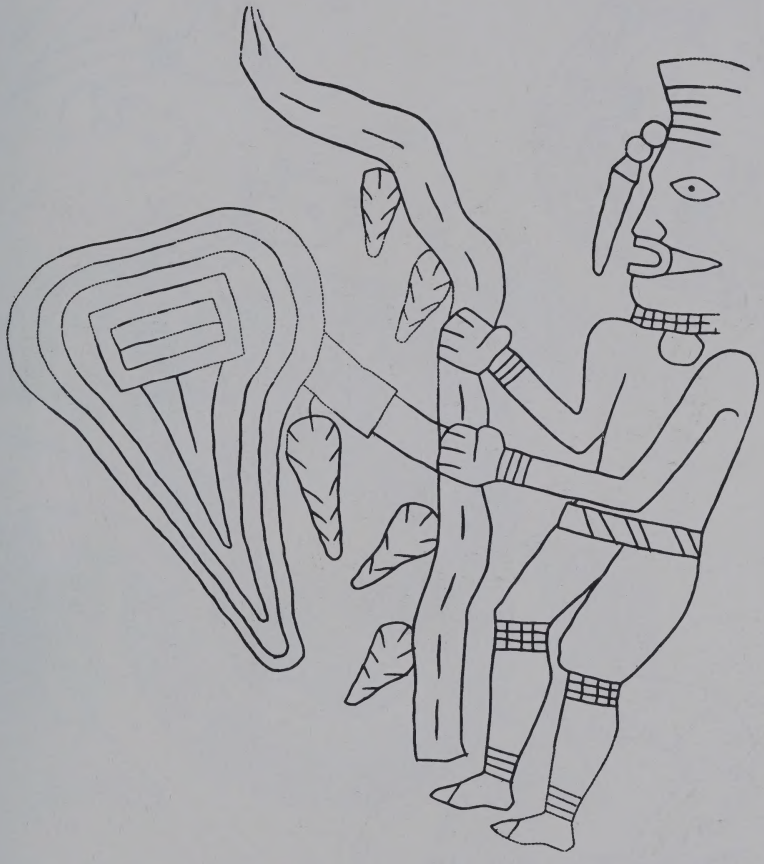
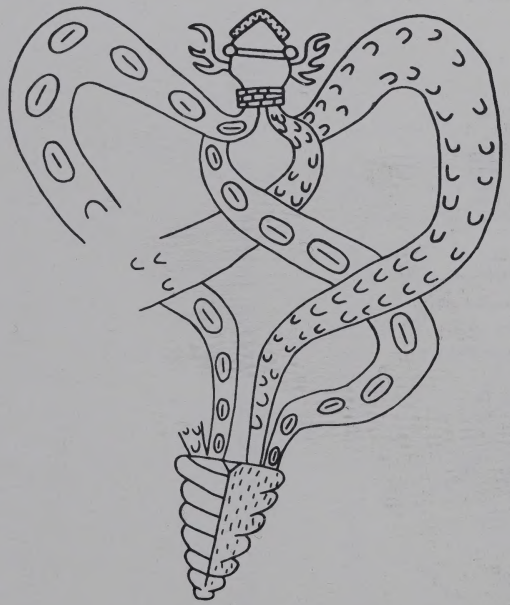


PLATE 107.--SNAKE DANCER (Shell 7 x 11 in.)



B

C

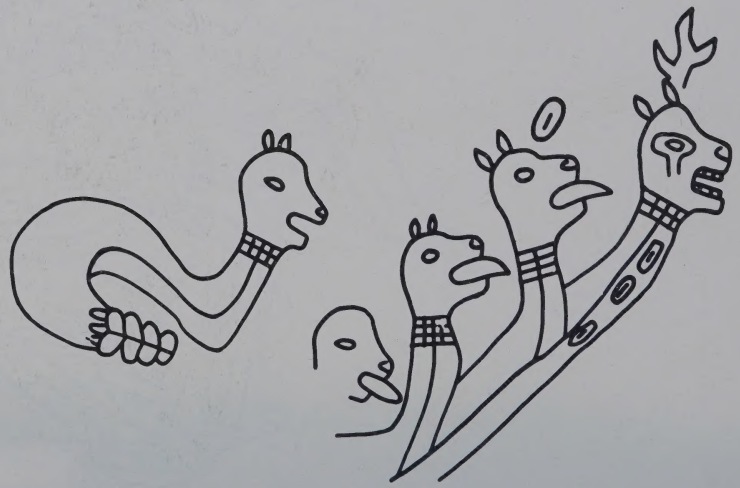


PLATE 108.--A. FOUR-BODIED RATTLESNAKE (Height 12 3/4 in.)
B. SIX-HEADED RATTLESNAKE (Length of shell 8 1/4 in.)
C. MULTI-HEADED SNAKE (Height 8 3/4 in.)

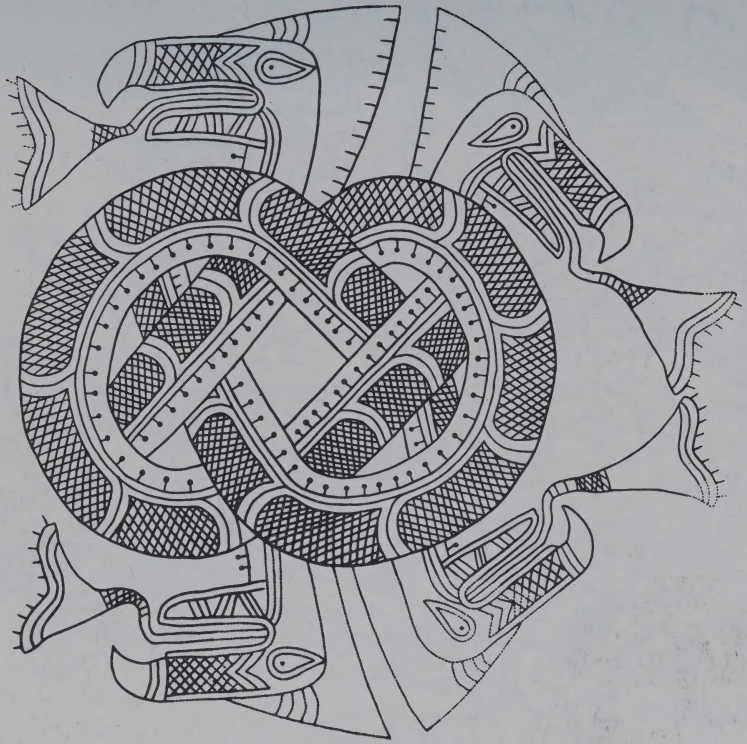


PLATE 109.--BIRD-SNAKE COMBINATION (Shell, 8 x 14 1/2 in.)

PLATE 110.--WINGED AND PLUMED RATTLESNAKE (Shell, 7 x 11 in.)

PLATE 111.--WORLD SYMBOL REPRESENTED BY COMPOSITE ANIMAL SNAKES (Shell, 6 1/2 x 9 in.)

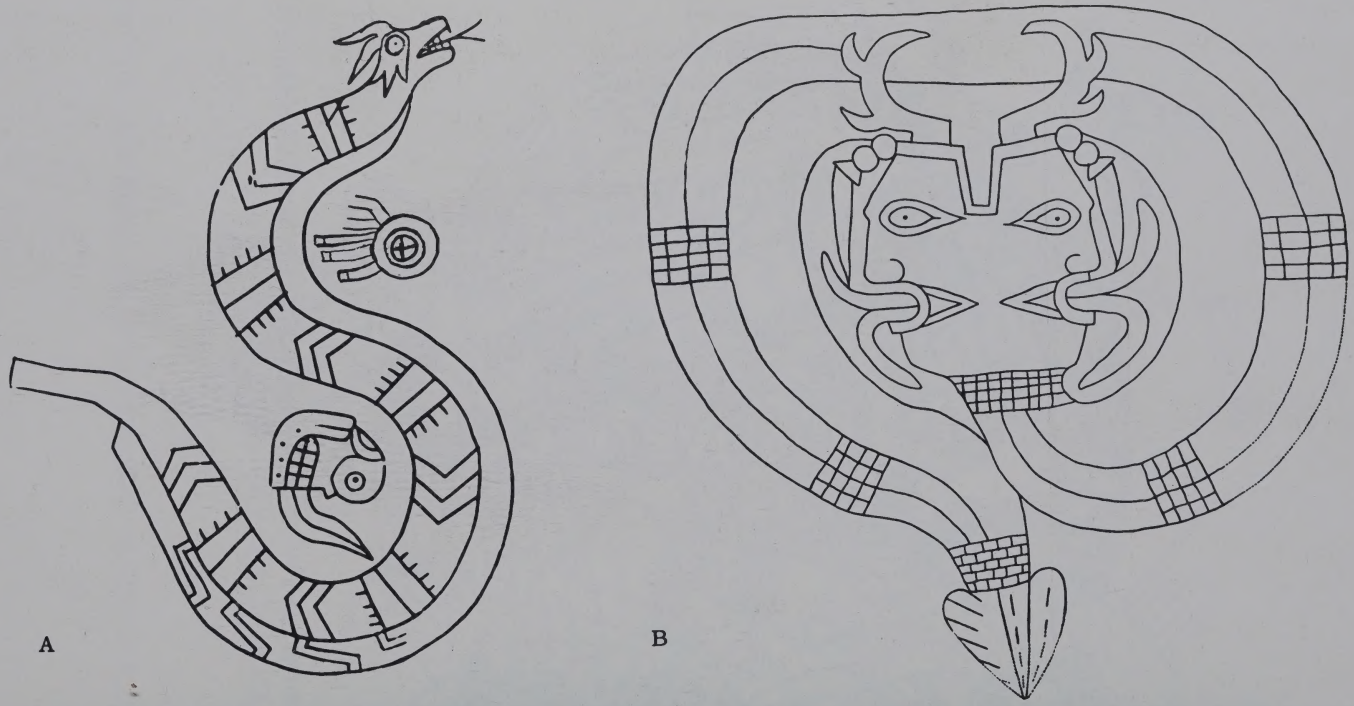
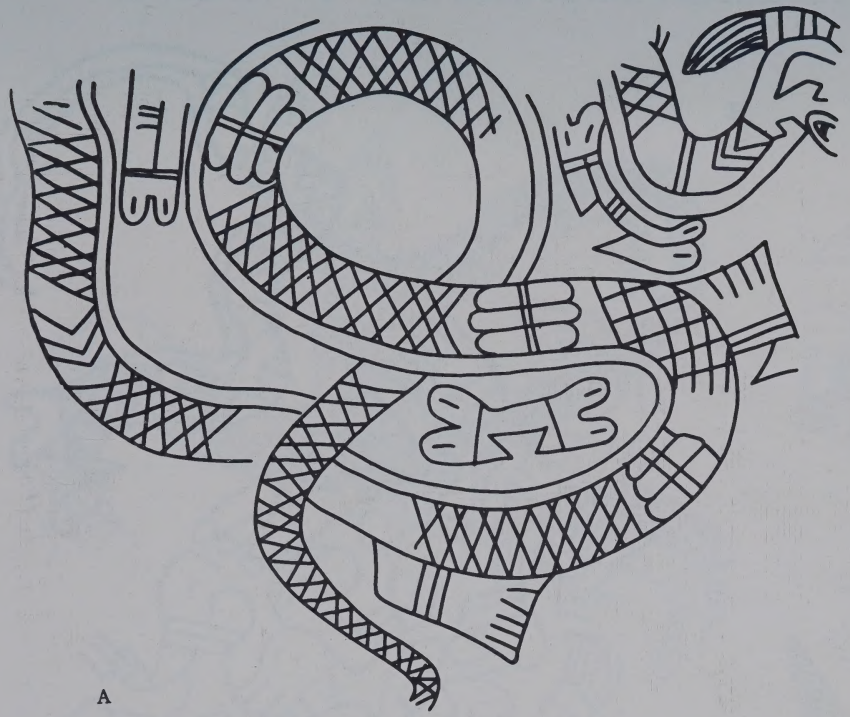


PLATE 112.--A. PLUMED SNAKE WITH CONVENTIONALIZED HAND AND SKULL (Shell, 7 x 10 in.)
B. ANTLERED DOUBLE-FACED HUMAN HEADED SNAKE (Shell, 7 1/2 x 12 in.)



A

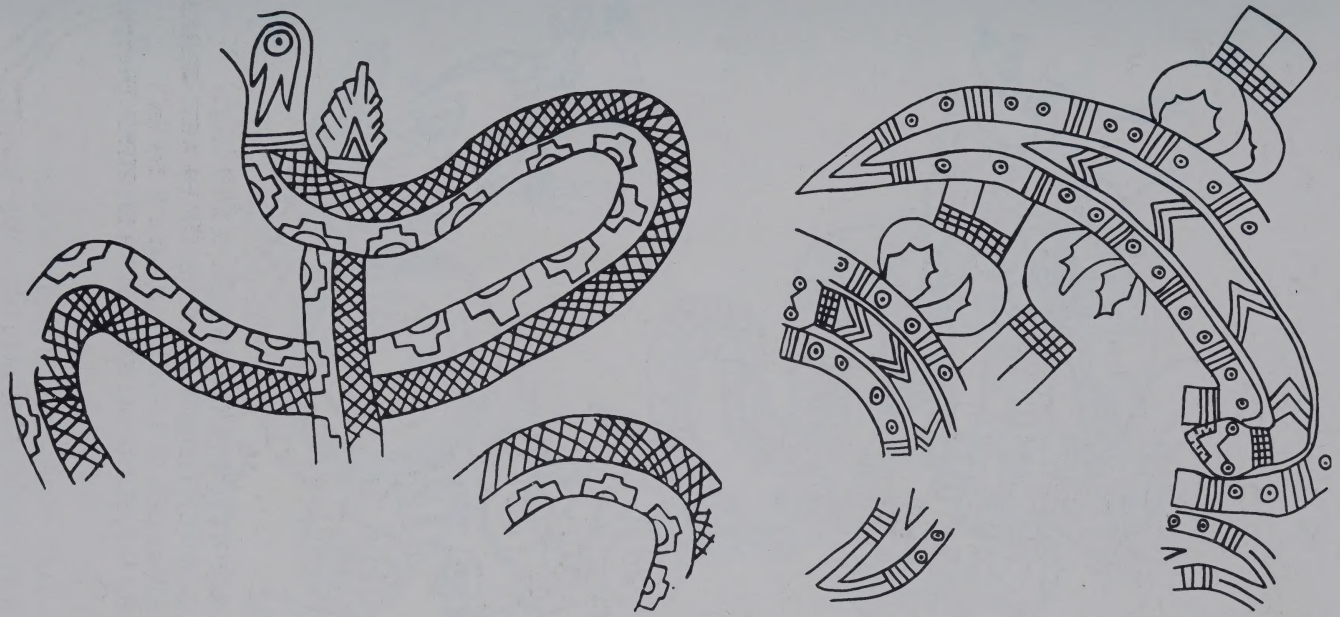
B

PLATE 113.--A. PLUMED SNAKE AND CONVENTIONALIZED DEATH SYMBOLS (Length of shell 9 1/4 in.)
B. PLUMED RATTLESNAKE AND EAGLE FEATHER DESIGN (Length of shell 13 5/8 in.)

A

B

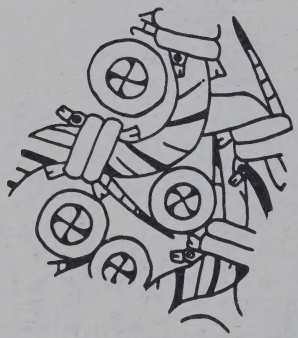
PLATE 114.--A. ANTLERED SNAKE AND INTRICATE DESIGN (Height 12 in.)
B. PLUMED RATTLESNAKE AND HAND (Height 10 3/4 in.)



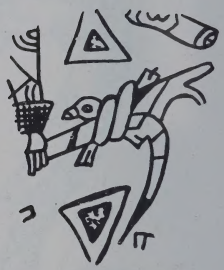
A B

PLATE 115.--A. SNAKE WITH PLUMED TAIL (Height 10 in.)
B. CONVENTIONALIZED SNAKES AND EAGLE CLAWS (Height 11 7/8 in.)

A

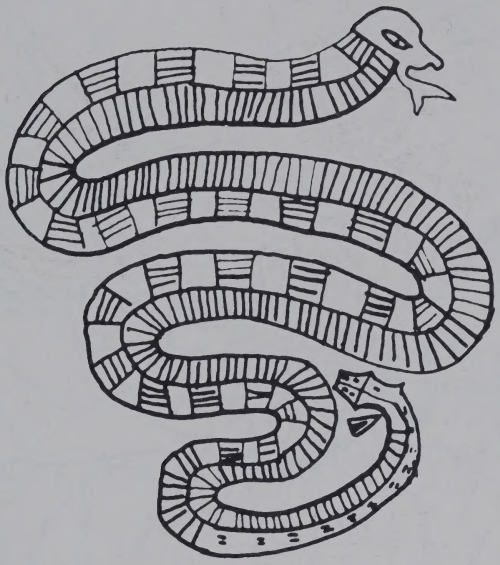


B

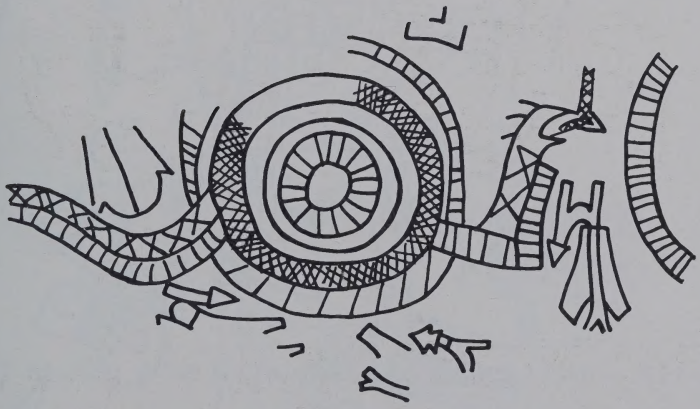


C

PLATE 116.--A. HORNED SNAKES (Height 5 9/16 in.)
B. CONVENTIONALIZATION OF SNAKE WHICH HAS SWALLOWED BIRDS (Height 5 3/4 in.)
C. HAND HOLDING SNAKE WITH BIRD (Height 3 1/2 in.)



A



B

PLATE 117.--A. SNAKE WITH MACE-LIKE TAIL
B. SNAKE AND BROKEN ARROWS (Length 8 7/8 in.)

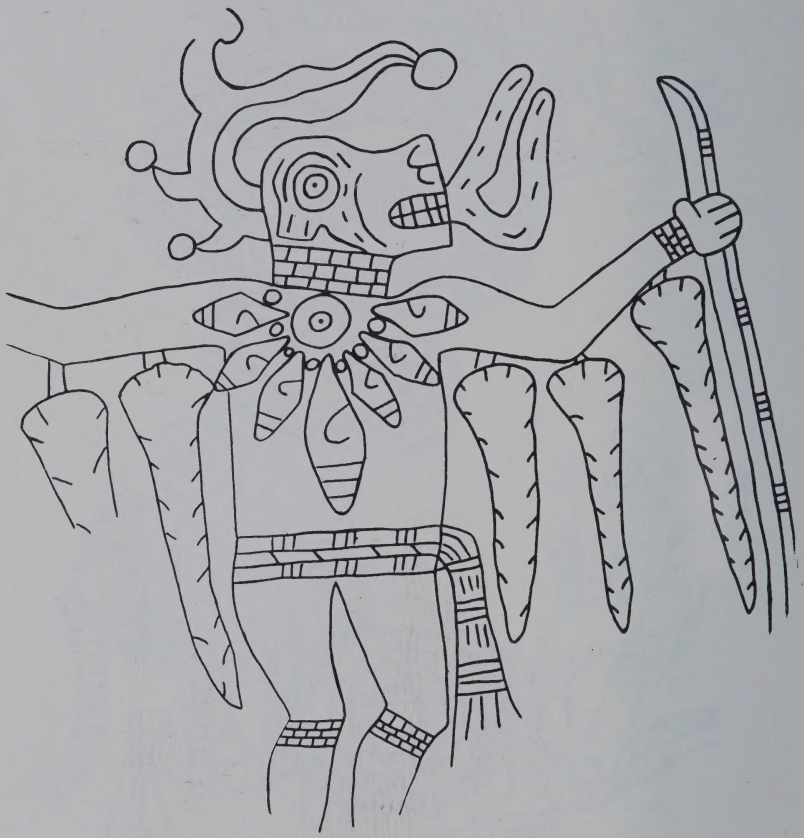
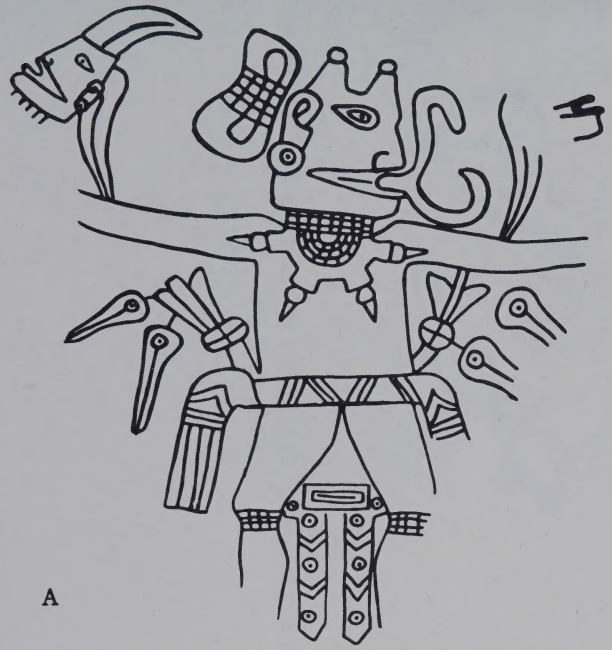
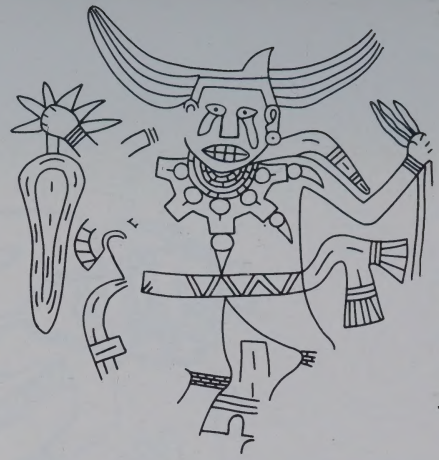


PLATE 118.--ANTLERED DANCER WITH BOW (Height 13 1/16 in.)



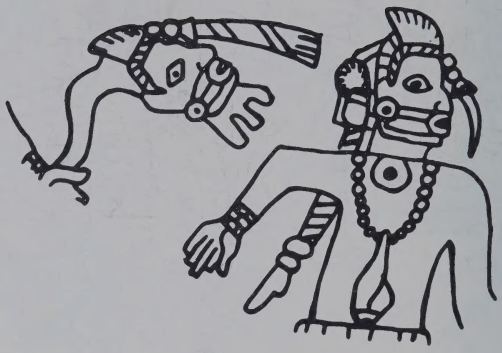
A



B

C

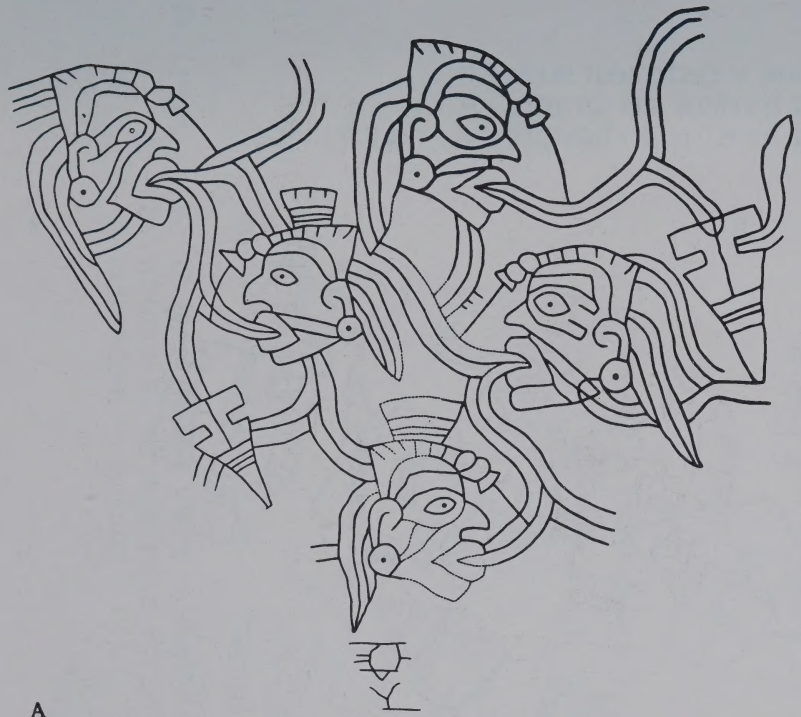
PLATE 119.--A. DANCER WITH HEADS OR MASKS ATTACHED TO ARMS (Height 11 1/4 in.)
B. DANCER WITH HORNED HEADDRESS (Length of shell 10 1/4 in.)
C. WARRIOR WITH TROPHY HEADS (Length of shell 8 1/2 in.)



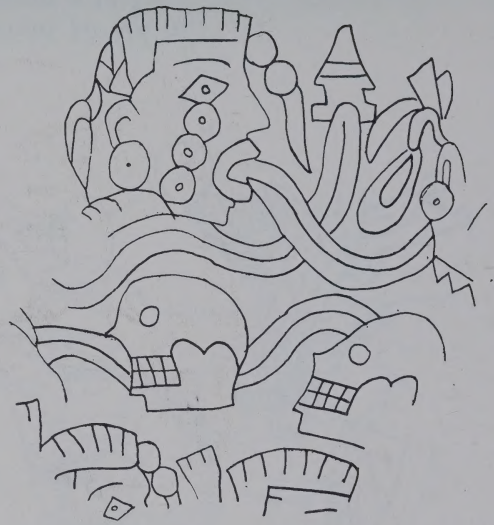
A

B

PLATE 120.--A. DANCER HOLDING MASK OR HEAD (Height 3 3/8 in.)
B. FEMALE HEADS (Height 6 1/16 in.)



A



B

PLATE 121.--A. HUMAN HEADS CONNECTED BY SPEECH SYMBOLS CARRYING ARROW POINTS (Shell, 7 x 11 in.)
B. HUMAN HEADS WITH SPEECH SYMBOLS CARRYING ARROW POINTS AND SKULLS (Shell, 4 1/2 x 3 in.)

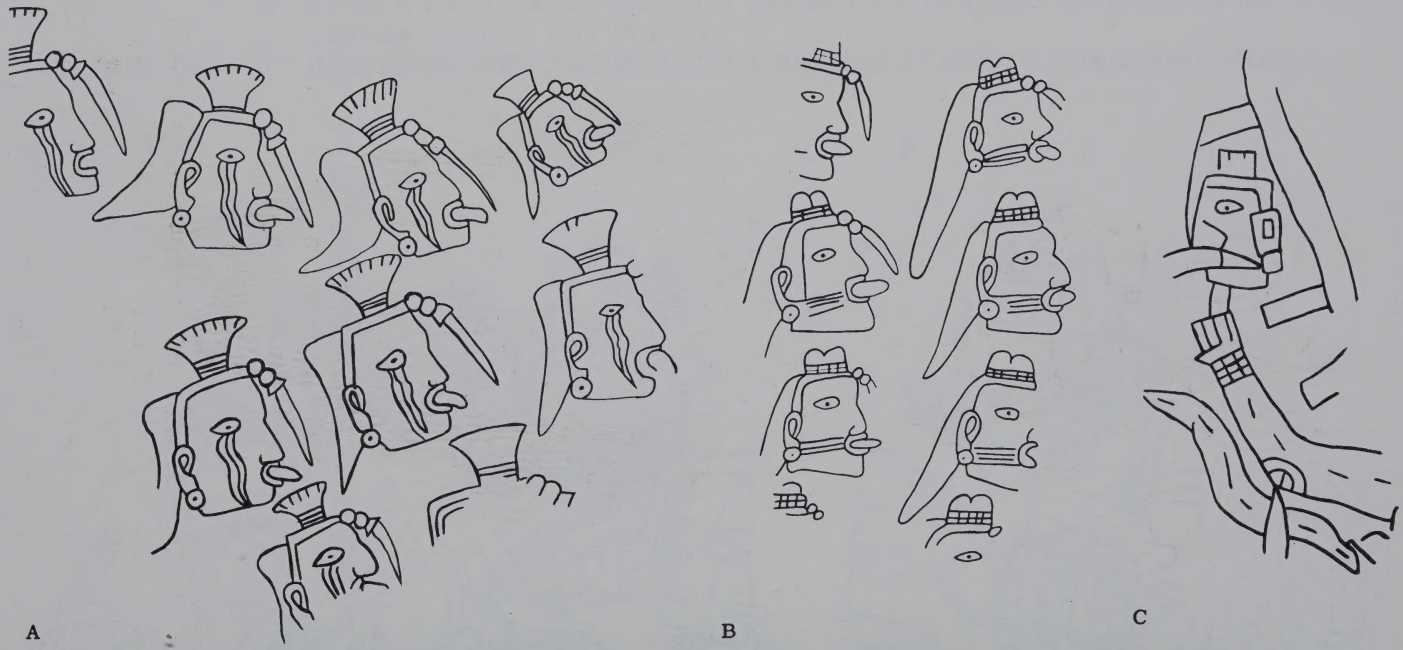
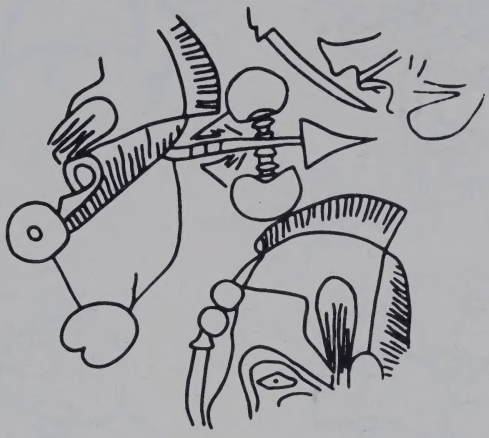
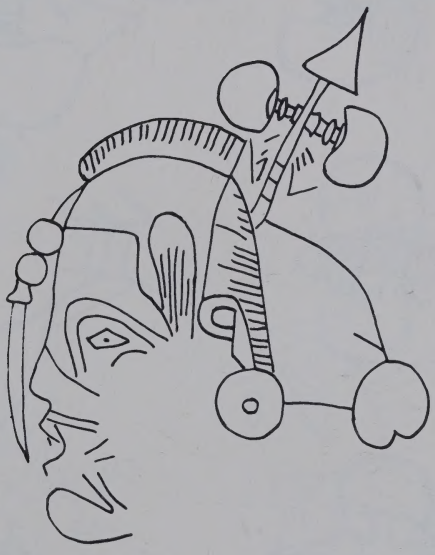


PLATE 122.--A. SERIES OF HUMAN HEADS (Height 10 3/4 in.)
B. SERIES OF HUMAN HEADS (Height 9 in.)
C. ARM HOLDING A MASK OR HEAD (Height 8 in.)



A



B

PLATE 123.--A. HUMAN HEADS WITH "SYMBOLS" (Height 7 in.)
B. RECONSTRUCTION BY MATCHING ABOVE COMPONENT PARTS

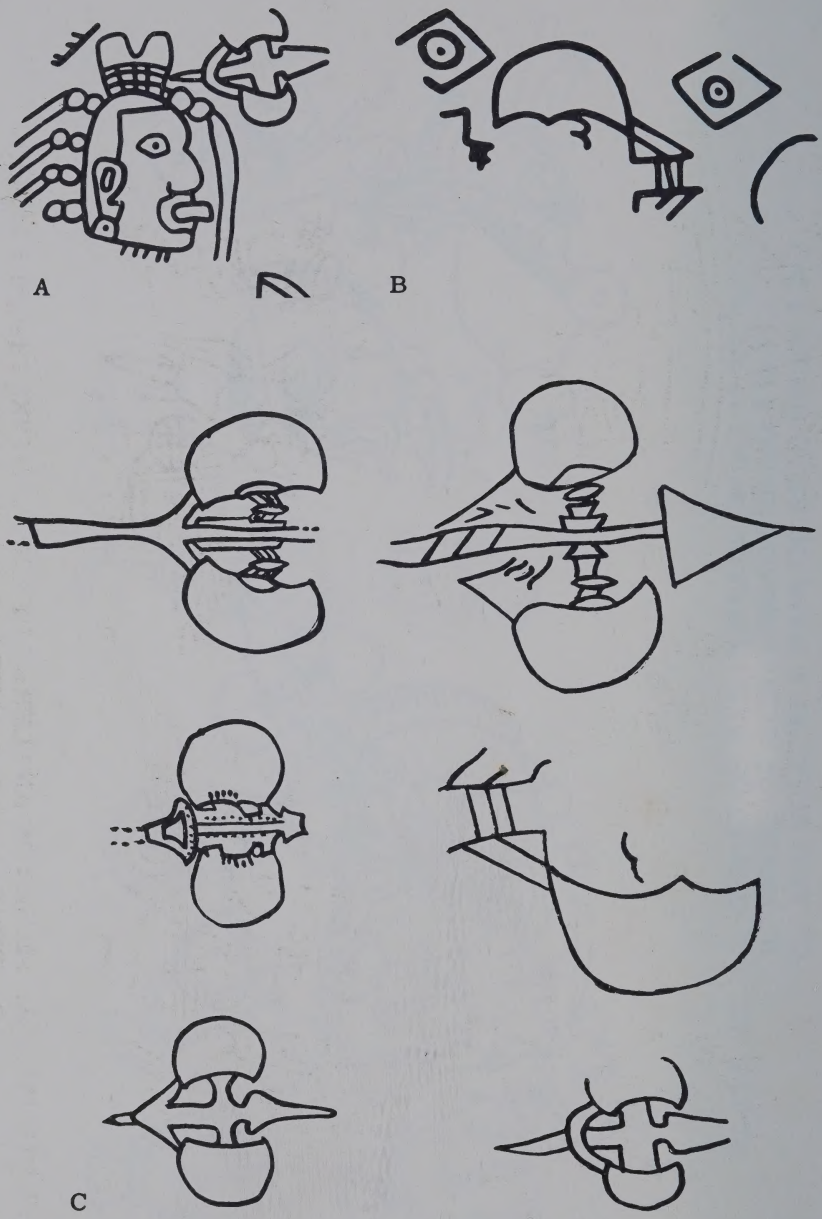
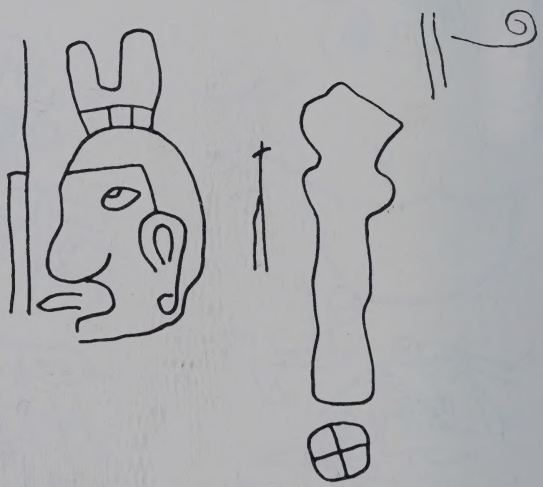


PLATE 124.--A. HUMAN HEAD WITH "SYMBOL" (Height 3 3/8 in.)
B. FRAGMENTRY "SYMBOL" (Height 2 9/16 in.)
C. SPIRO SYMBOLS (right) AND THEIR COUNTERPARTS FROM ETOWAH (left)

PLATE 125.--A. SERIES OF ANTLERED HEADS OR MASKS (Height 6 3/4 in.)
B. SERIES OF HUMAN HEADS (Height 5 1/2 in.)
C. HEAD OF DANCER (Height 4 in.)
D. HUMAN HEADS (Height 4 in.)

A

B



C

PLATE 126.--A. SERIES OF HUMAN HEADS (Height 3 1/2 in.)
B. HUMAN FIGURE (Height 2 1/16 in.)
C. HUMAN HEAD OR MASK AND MACE (Height 5 1/4 in.)

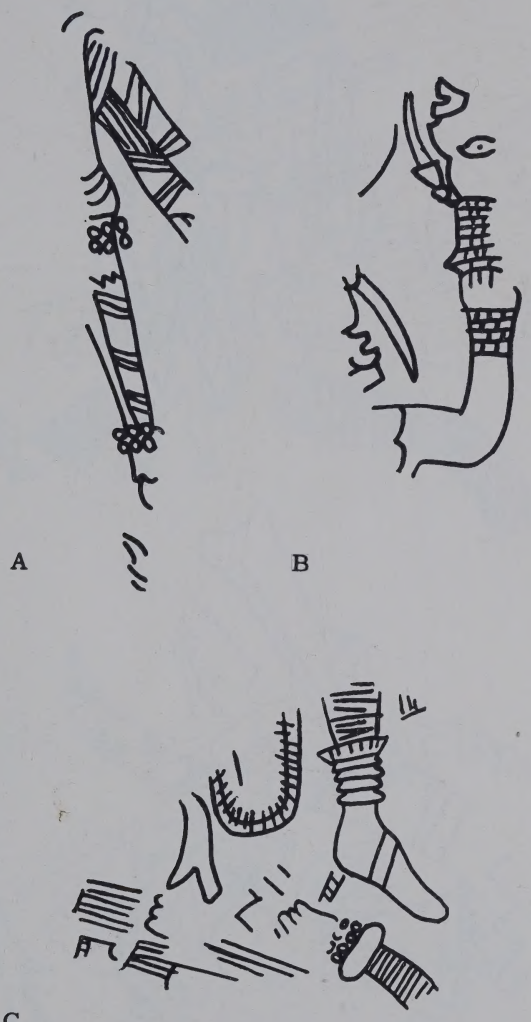


PLATE 127.--FRAGMENTARY HUMAN FIGURES

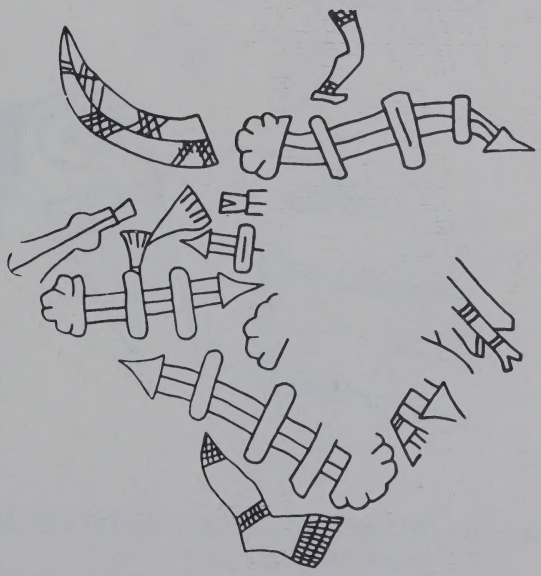
A. Leg and arm (Height 5 1/2 in.)
B. Arm holding head (Height 3 in.)
C. Foot (Height 3 1/8 in.)

A

B

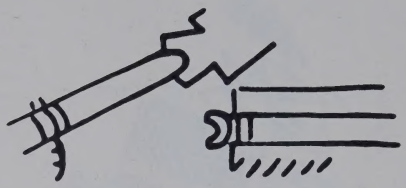
PLATE 128.--A. KEY MACE (Height 7 3/4 in.)
B. CONVENTIONALIZED BIRD DESIGN AND ARROW (Height 9 1/8 in.)

A

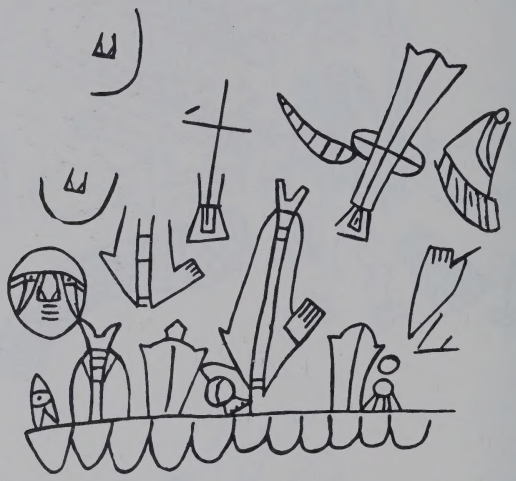


B

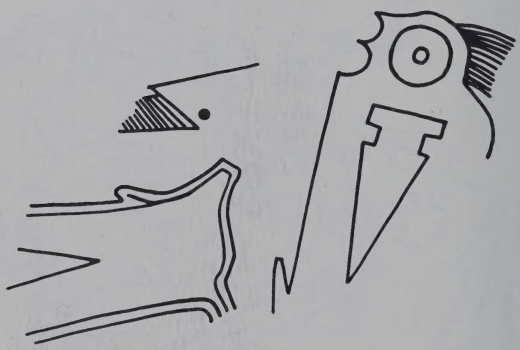
PLATE 129.--A. BROKEN ARROWS; MACE AND HUMAN FIGURE (Height 11 5/8 in.)
B. CONVENTIONALIZED ARROWS AND MACE (Height 13 1/4 in.)



A

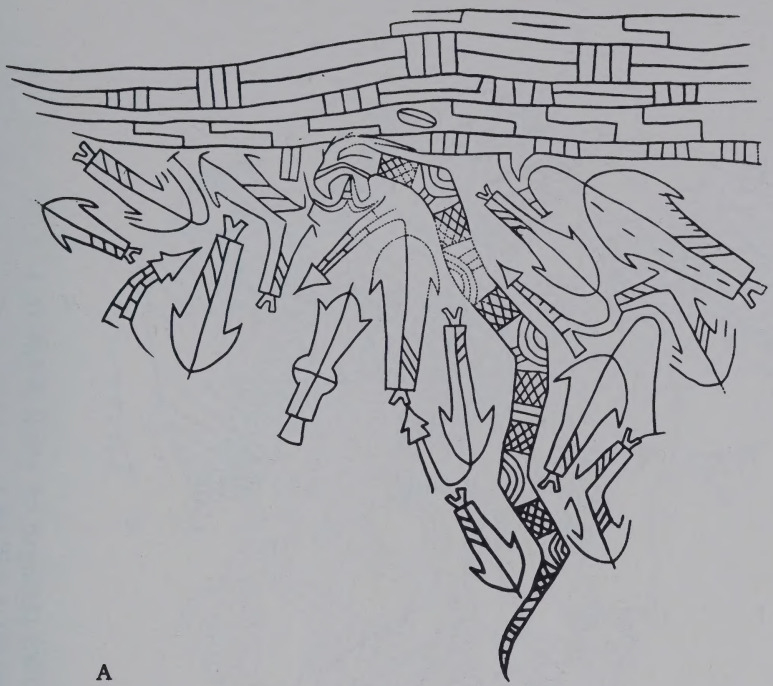


B

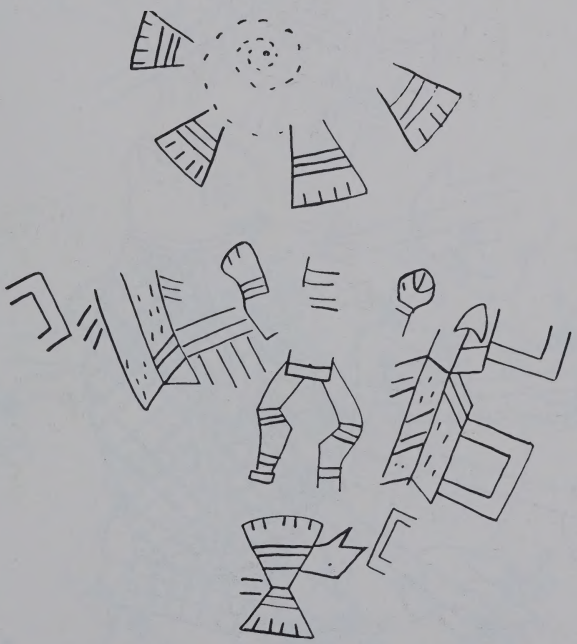


C

PLATE 130.--A. NOCK AND POINT ENDS OF ARROWS (Length 3 7/8 in.)
B. ARROWS, MACES AND HUMAN MASKS (Height 7 1/4 in.)
C. SERIES OF BIRD AND PROJECTILE POINT DESIGNS (Height 5 1/8 in.)



A



B

PLATE 131.--A. SNAKE SURROUNDED BY ARROWS AND MACE (Shell, 6 1/2 x 11 1/2 in.)
B. HUMAN FIGURE SURROUNDED BY CONVENTIONALIZED DESIGNS (Height 12 in.)

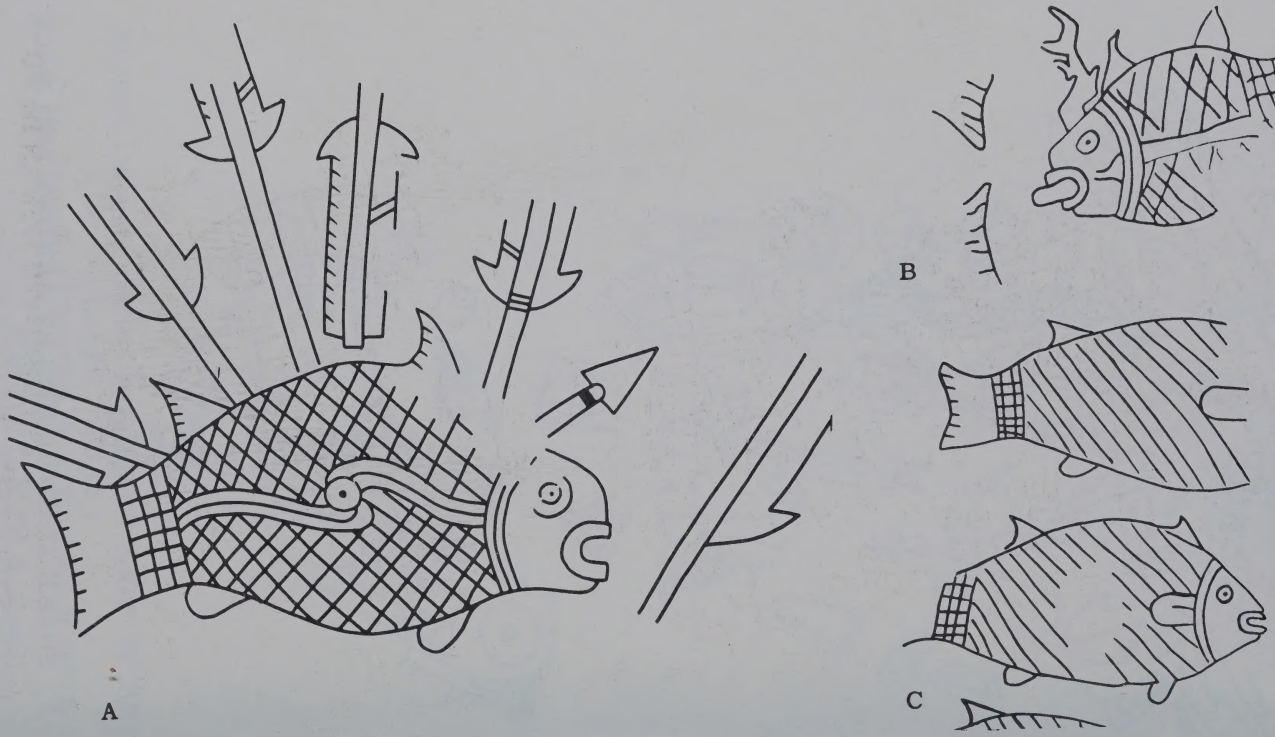


PLATE 132.--A. FISH PIERCED BY ARROWS (Length of shell 9 3/4 in.)
B. FISH WITH ANTLERS (Height 5 5/8 in.)
C. SERIES OF FISH (Height 10 3/4 in.)

A

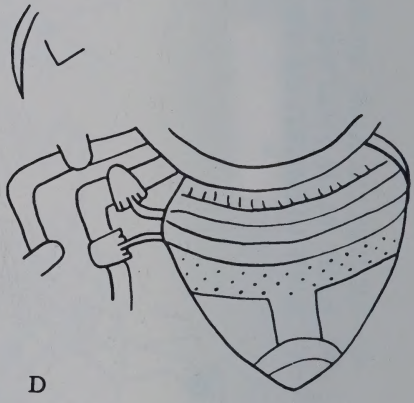
B

PLATE 133.--A. CAT-LIKE FIGURE WITH HUMAN HEAD
(Shell, 6 1/2 x 8 in.)
B. CAT-LIKE FIGURE WITH EAGLE CLAWS
(Length of shell 8 1/2 in.)

A

B

C



D

PLATE 134.--A. WOLF (Height 4 5/8 in.)
B. RACCOON (Height 1 3/4 in.)
C. SPIDER BODY AND EAGLE CLAW (Height 5 1/4 in.)
D. SPIDER BODY (Height 6 in.)

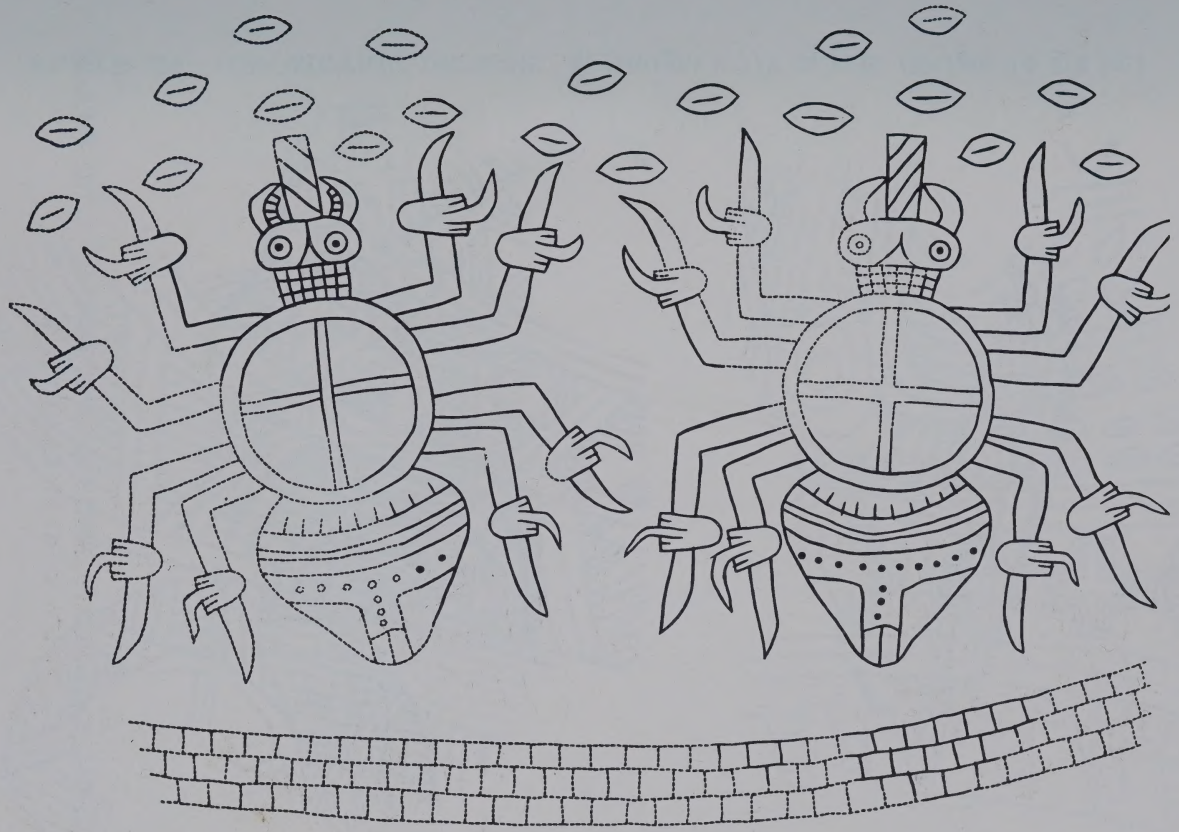


PLATE 135.--SPIDERS

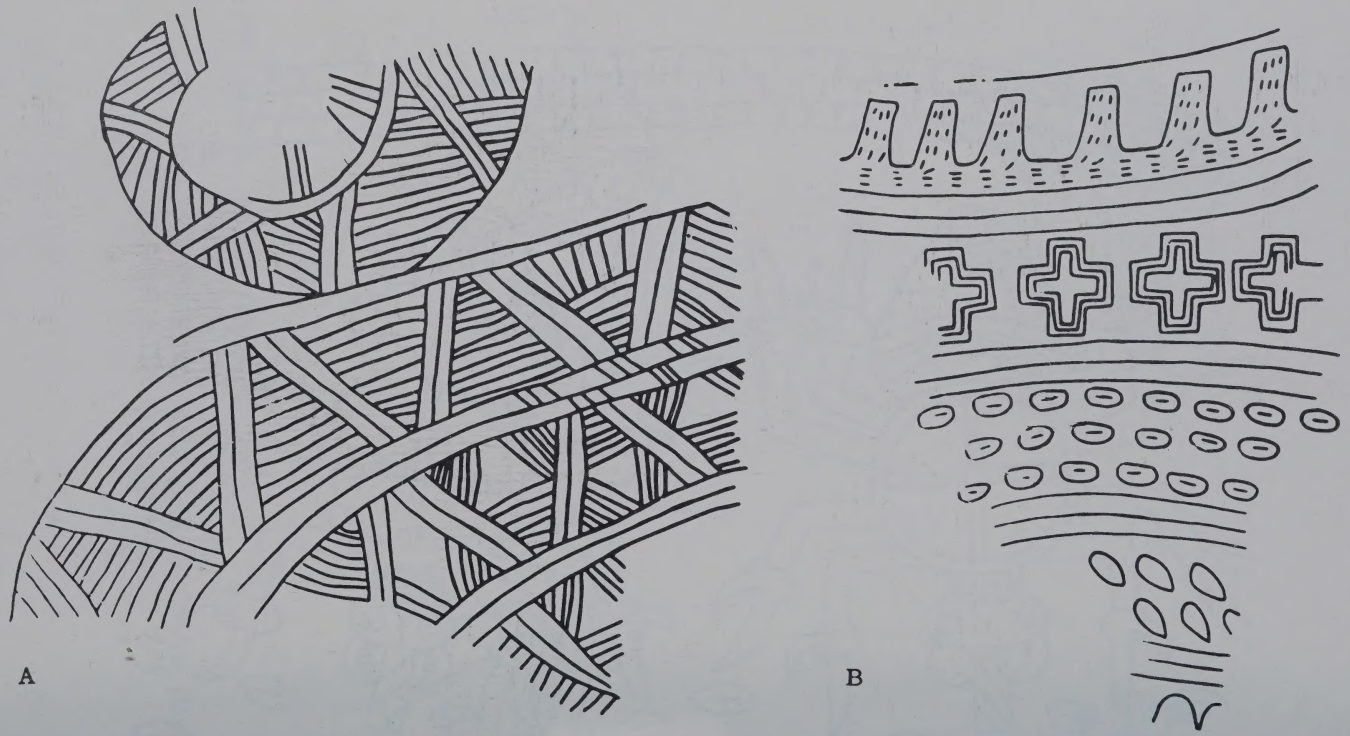


PLATE 136.--GEOMETRIC DESIGNS A. (Height 9 1/2 in.) B. (Height 10 5/8 in.)

A

B

PLATE 137.--GEOMETRIC DESINGS A. (Width 9 3/16 in.)
B. (Width 10 15/16 in.)

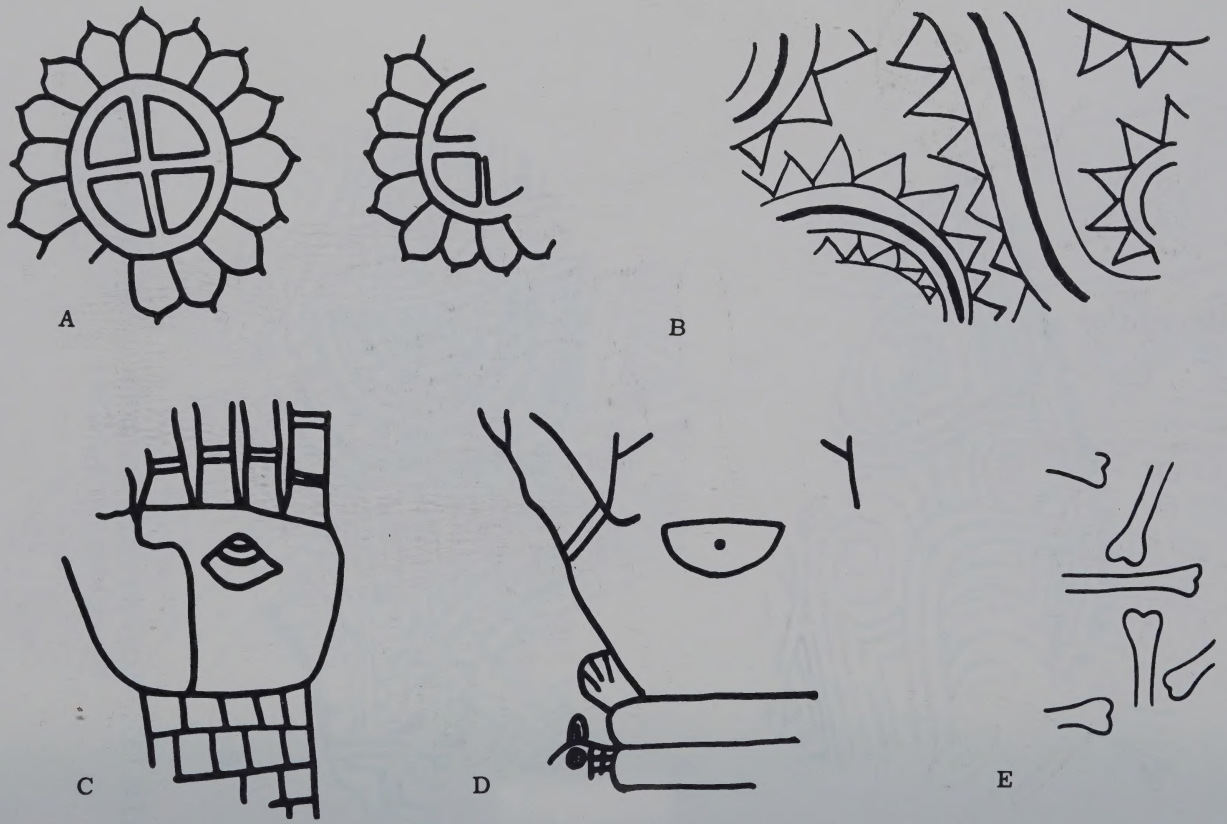
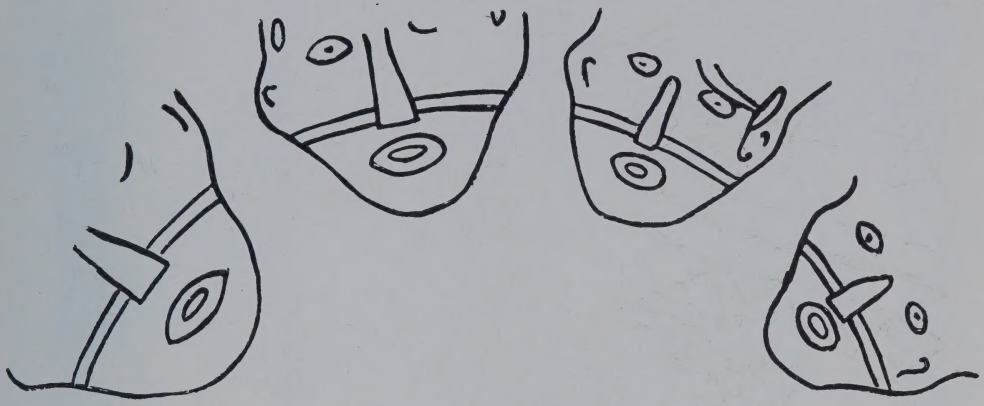


PLATE 138.--A. COMBINED WORLD AND SUN SYMBOLS (Height 5 1/8 in.)
B. SUN SYMBOL MOTIF (Height 3 1/4 in.)
C & D. HANDS WITH EYE IN PALM (Height 4 3/8 in. and 2 3/4 in.)
E. BONES (Height 2 1/2 in.)



A

B

PLATE 139.--DESIGNS IN BAS RELIEF ON CONCH SHELLS

A. Series of human heads in circular arrangement (Length 6 1/8 in.)

B. Series of human heads with ornate headdress (Height 3 3/8 in.)

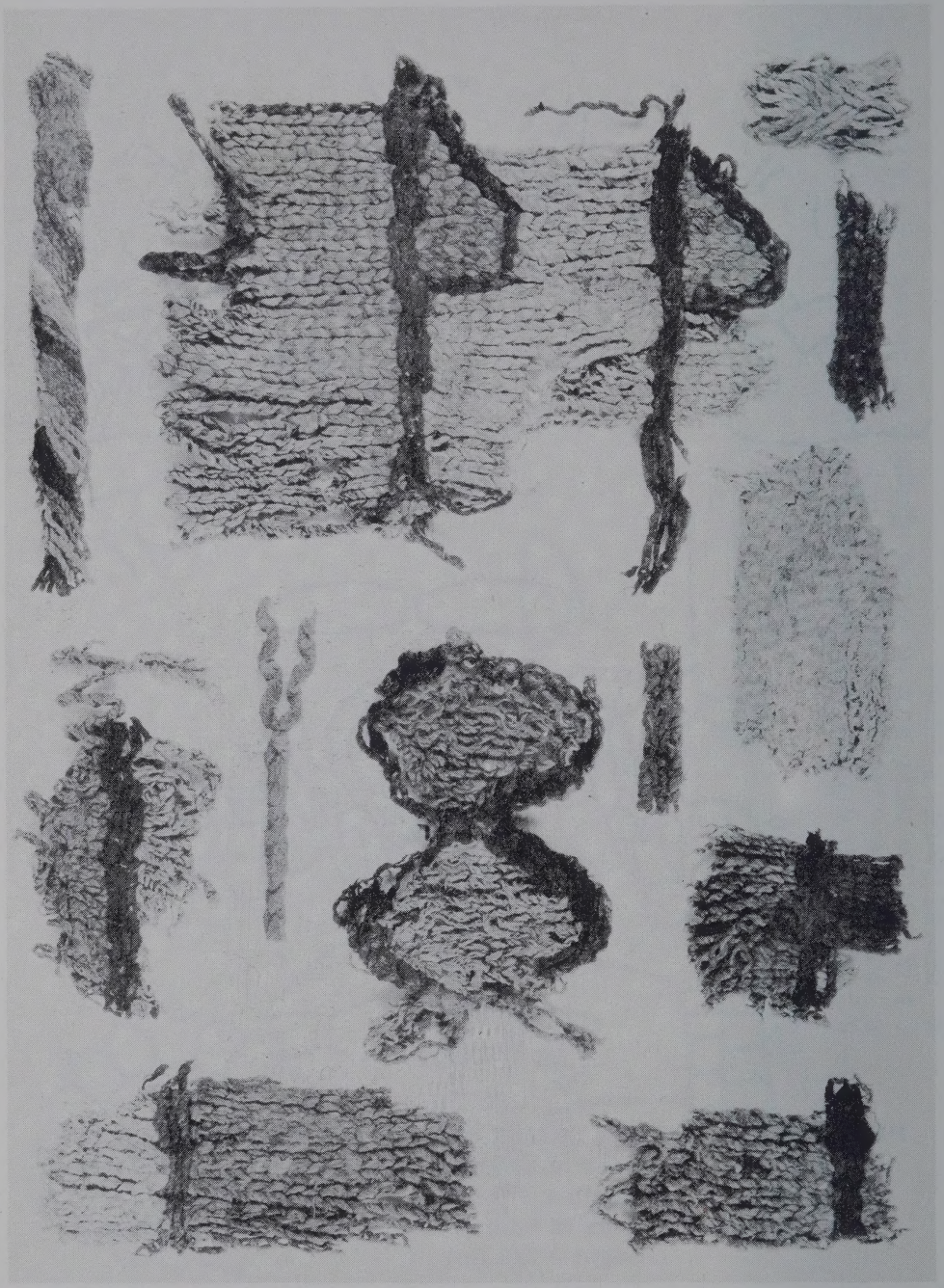


PLATE 140.--FRAGMENTS OF POLYCHROME CLOTH
Vegetal fiber and rabbit hair (width of largest 3 7/8 in.)

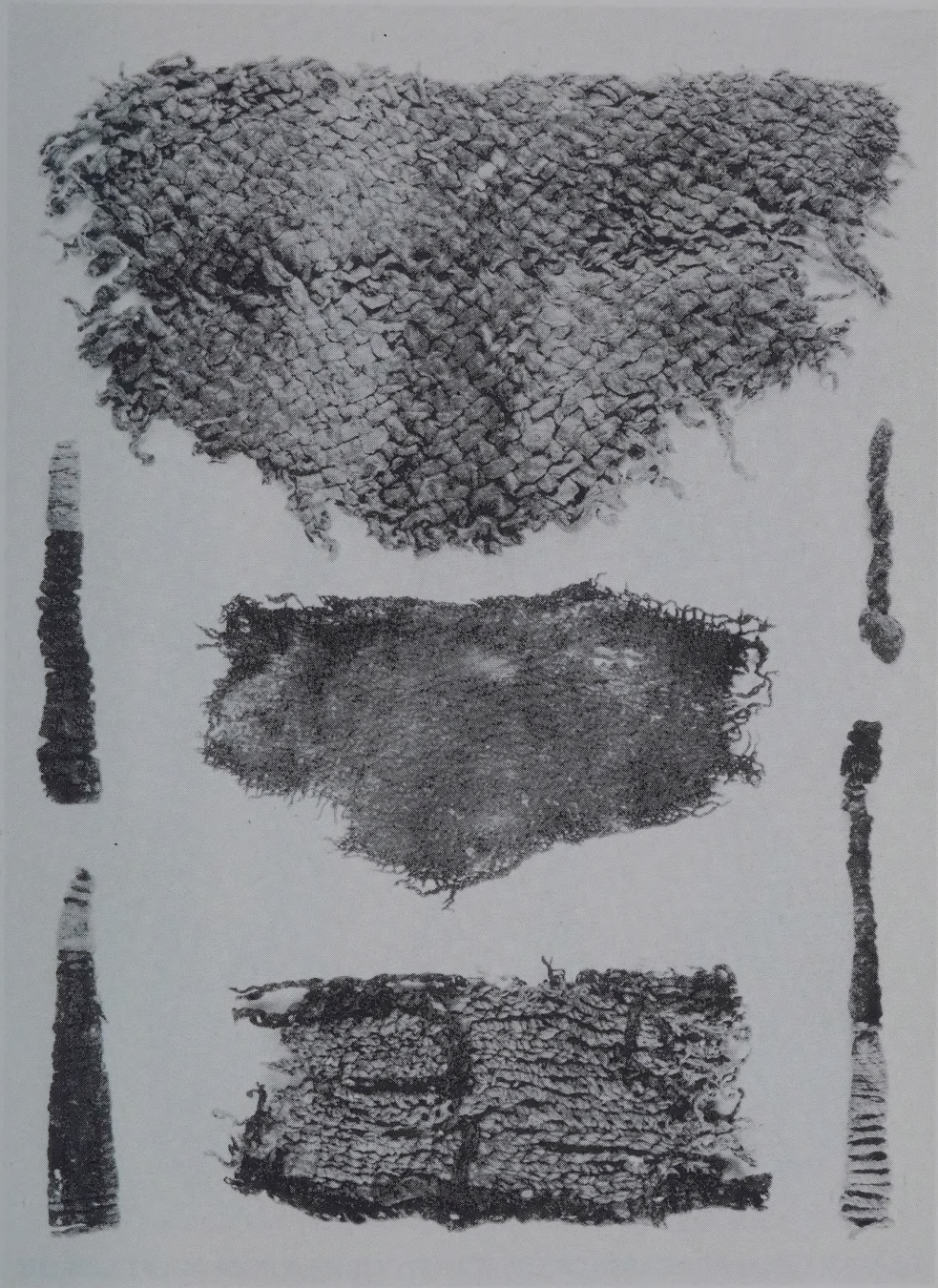


PLATE 141.--FRAGMENTS OF RABBIT AND BUFFALO HAIR MANTLES (Width of largest 5 5/16.)

PLATE 142.--FRAGMENTS OF WARP CORDS FROM MANTLES OF FEATHERS AND RABBIT HAIR

PLATE 143.--FRAGMENTS OF WARP CORDS FROM MANTLES OF FEATHERS AND RABBIT HAIR

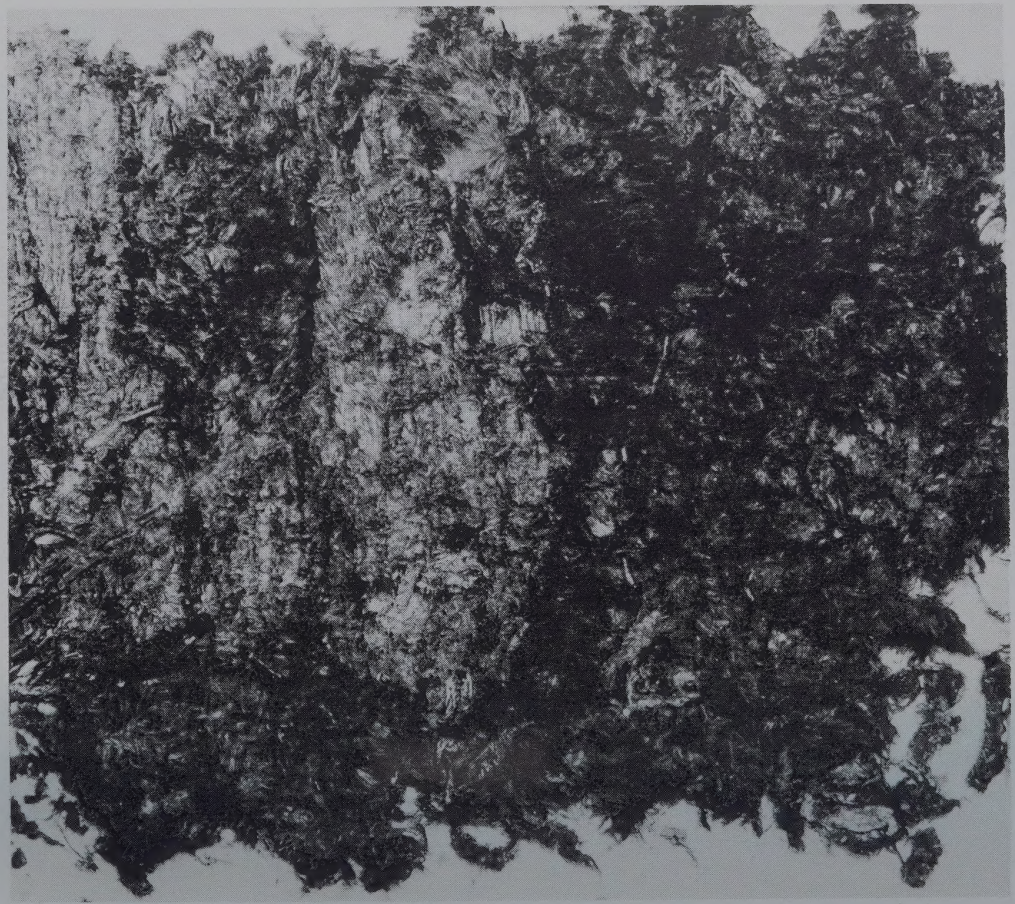


PLATE 144.--FRAGMENTS OF FEATHER MANTLES OR SHAWLS (17 x 21 in.)

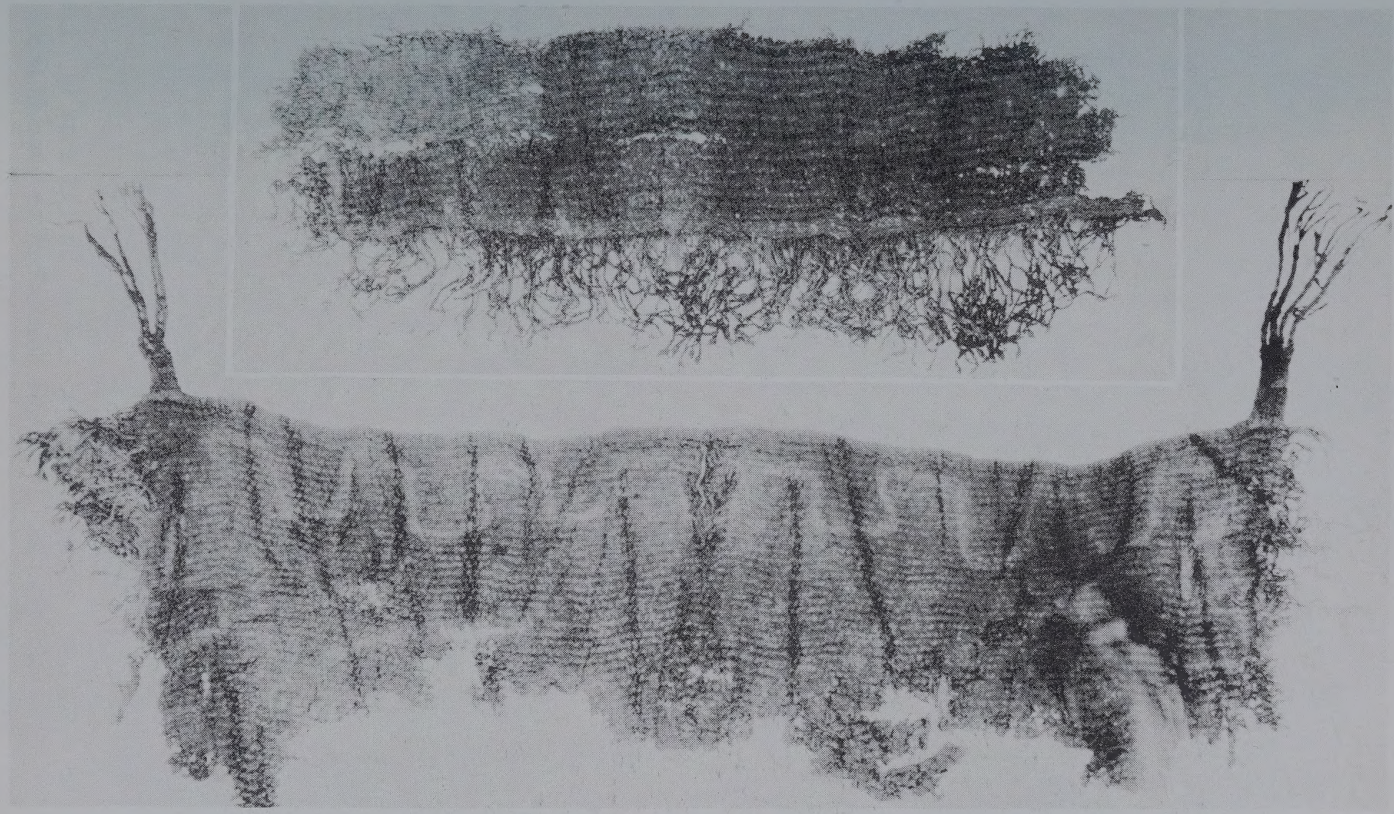


PLATE 145.--FRAGMENTS OF A SHAWL OR MANTLE OF RABBIT HAIR Upper 13 x 26 in.
Lower 23 x 51 in.

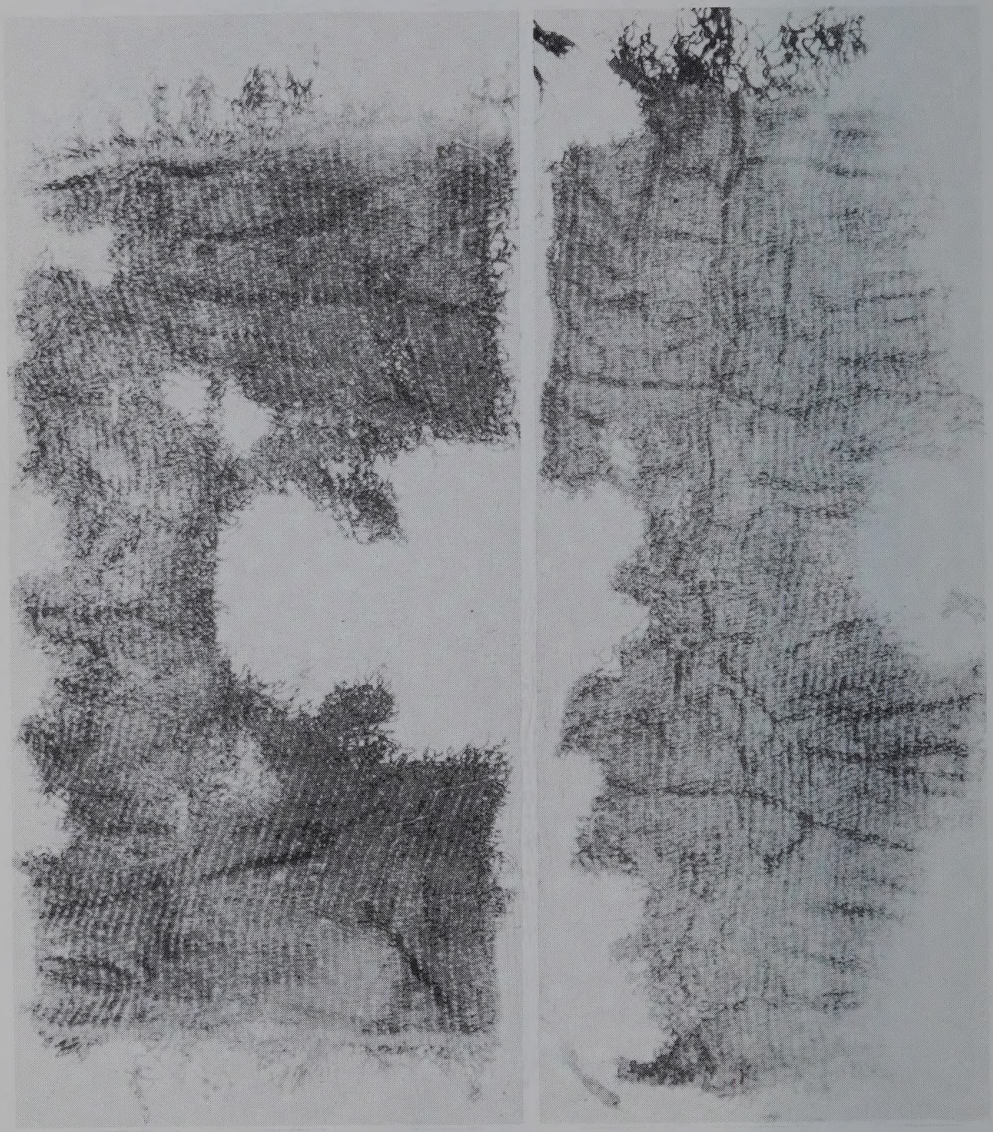


PLATE 146.--RABBIT HAIR MANTLE Upper, 23 1/2 x 47 in.; Lower, 19 1/2 x 53 in. (Plate is described as viewed from the side)

PLATE 147.--RABBIT HAIR GARMENT WITH FRINGED EDGES AT TOP, BOTTOM AND ONE SIDE (26 1/2 x 39 in.)

PLATE 148.--FRAGMENTS OF RABBIT HAIR MANTLES Upper 19 1/2 x 53 in.; Lower 10 1/2 x 49 in.

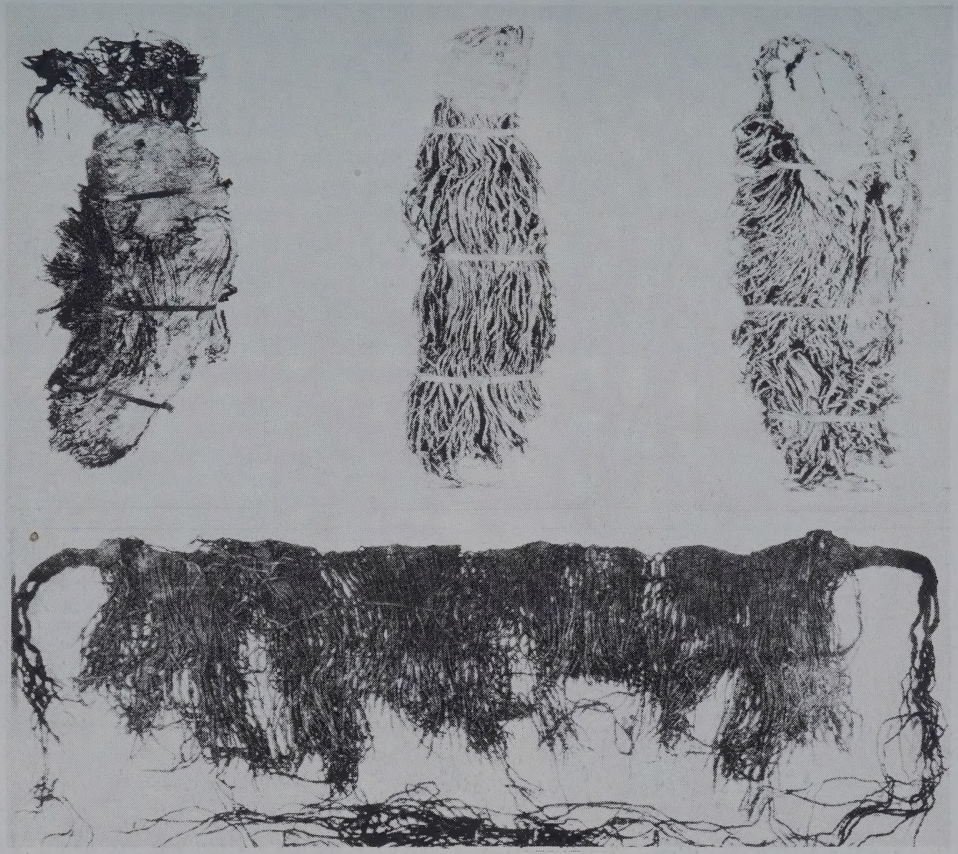


PLATE 149.--FOUR FRINGED SKIRTS OF RABBIT HAIR FOR WOMEN Upper three in bundles as found; Lower, unwrapped (Length 39 in.)

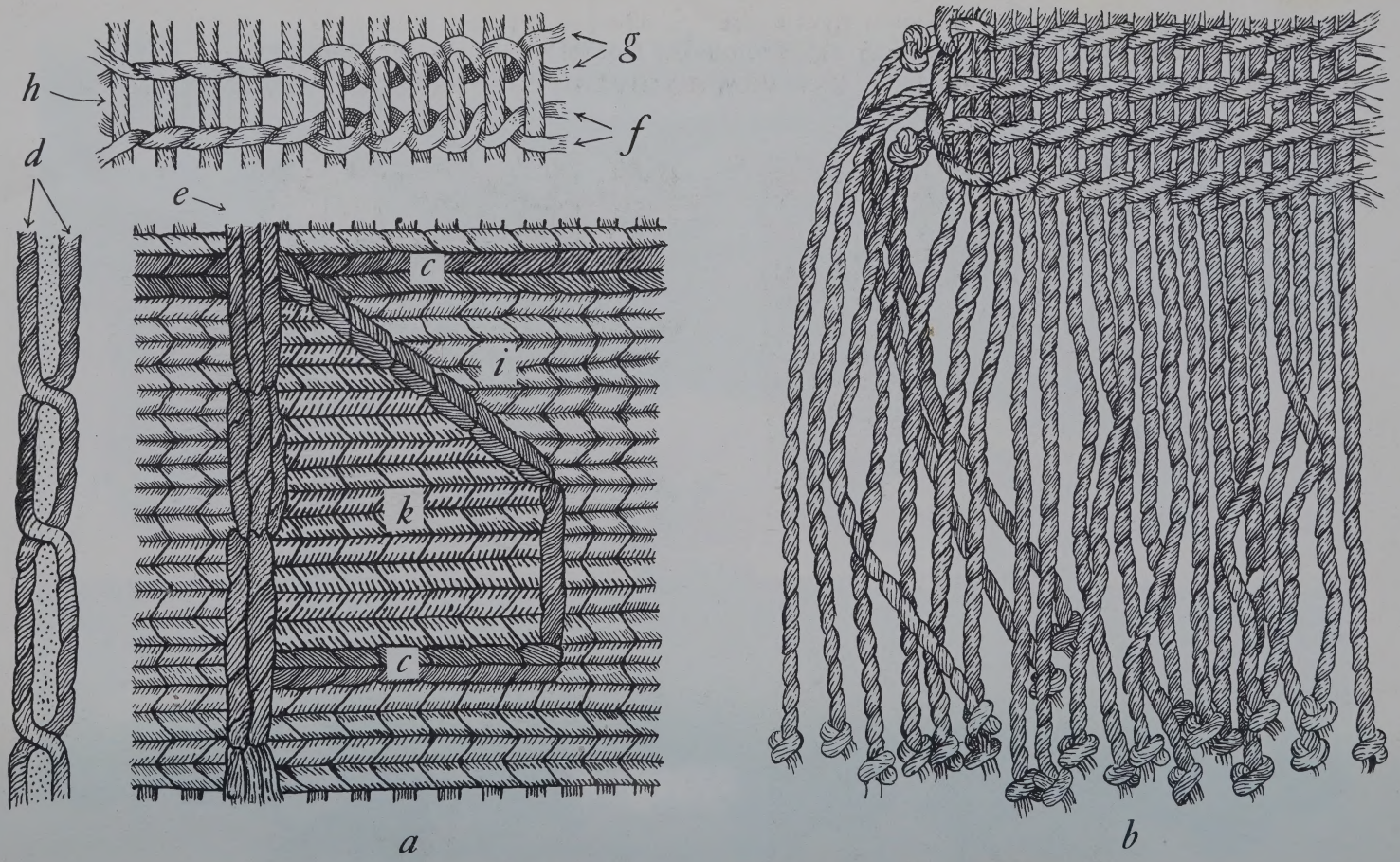


PLATE 150.--DRAWINGS SHOWING DETAIL OF WEAVING A. Section of polychrome cloth
B. Corner of a mantle in twined weaving with fringe

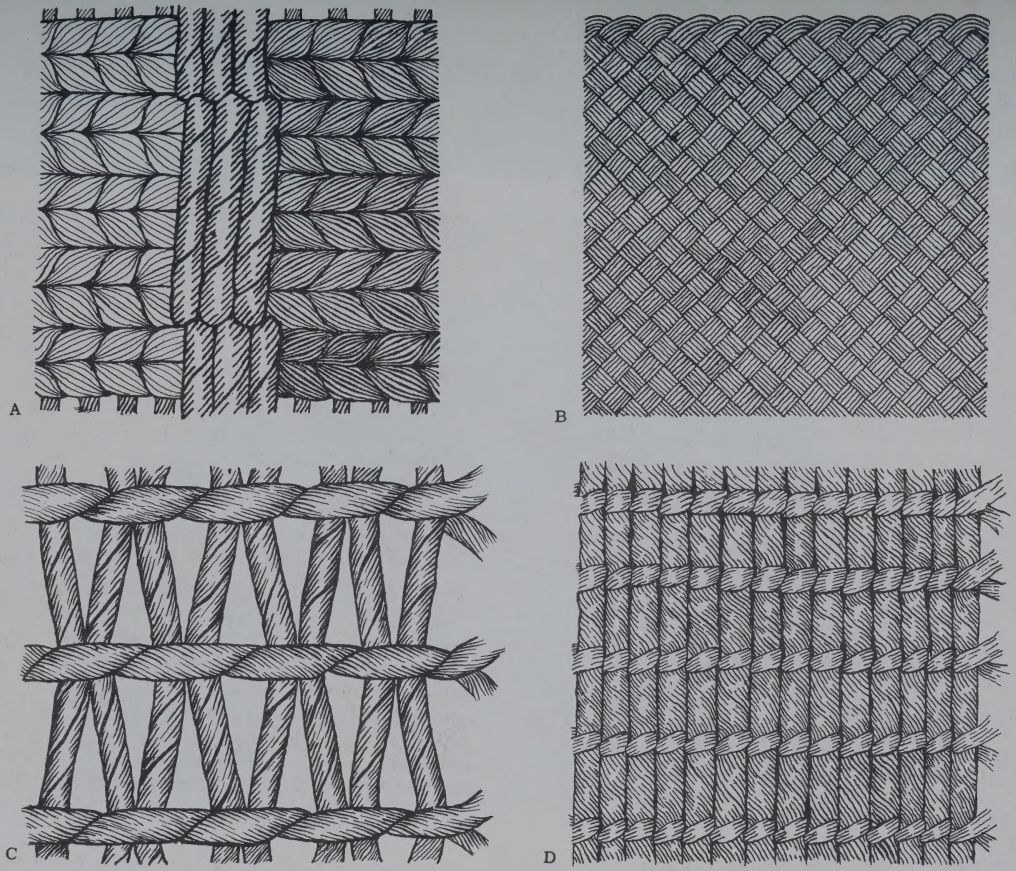


PLATE 151.--DRAWINGS SHOWING DETAIL OF WEAVING A. Fragment of polychrome cloth showing method of joining two colors B. Checker woven textile showing method of forming selvage C. Open twill weaving D. Simple twined weaving

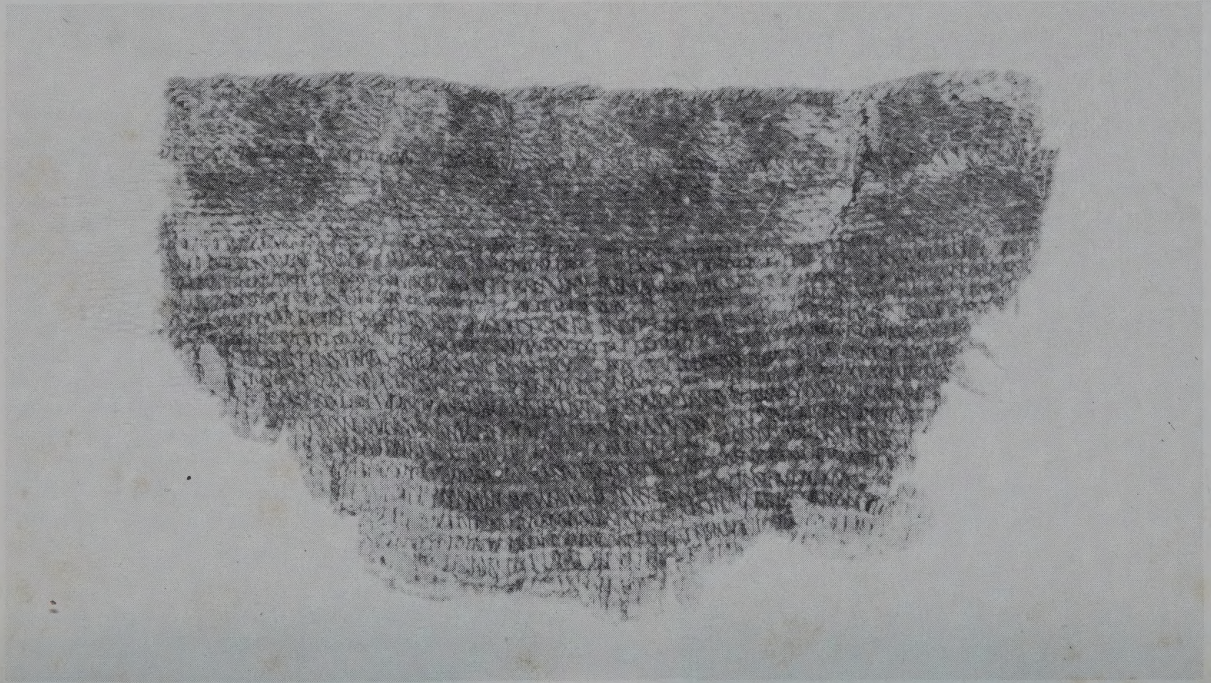


PLATE 152.--FRAGMENT OF VEGETAL FIBER BASKET IN SIMPLE TWINED WEAVING